

Sept 79
A Special Offer to Readers of
**SCIENTIFIC
AMERICAN**

W. H. Freeman and Company
Publishers in Science



THE CYCLING FEMALE

HER MENSTRUAL RHYTHM

Allen Lein, University of California, San Diego

This is a book about the human menstrual cycle and its impact on the lives of women. Of special interest to young people, *The Cycling Female* will prove enlightening for readers of all ages and both sexes. Without sacrificing thoroughness or accuracy, Allen Lein maintains an easy, conversational tone throughout his discussion of both the physical and the psychological elements of the menstrual cycle.

After a brief review of reproductive cycles in general, *The Cycling Female* focuses on the human menstrual cycle, identifying the components of the cycling system, showing how they work together, explaining why menstruation sometimes stops, and examining the degree to which the cycle dominates women's lives. The cycle's influence on the physical, emotional, and social status of women is discussed, along with its relationship to such topics as puberty, pregnancy, milk production, and contraception.

"A beautiful book, written in a warm, 'comfortable' style. . . . Excellent, lucid explanations . . . and much reassurance. I congratulate Dr. Lein. If I lend my copy to my daughter, will I get it back?"

—Miriam S. James, Professor of Biology, University of Utah

1979, 135 pages, 10 illustrations, hardbound \$10.00 **Special Price \$8.50**
(softbound \$5.00)

*"A comprehensive and
unforgettable vision"**

Tissues and Organs

A Text-Atlas of Scanning Electron Microscopy

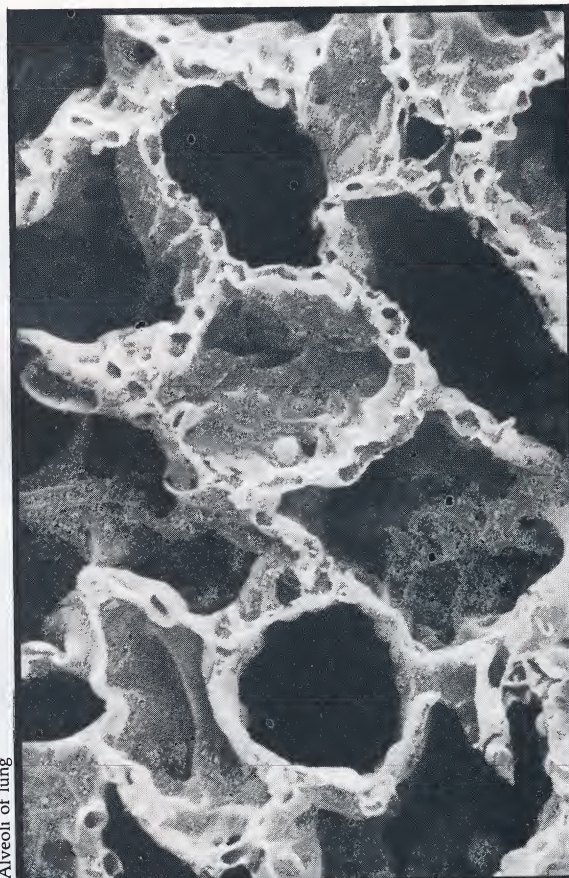
Richard G. Kessel and Randy H. Kardon
The University of Iowa

The hundreds of scanning electron micrographs in *Tissues and Organs* literally show you the sometimes startling, always fascinating, intricacies of the basic tissue types that make up the organs of the body. These illustrations are correlated with a thorough explanatory text, as well as with diagrams, light photomicrographs, and transmission electron micrographs.

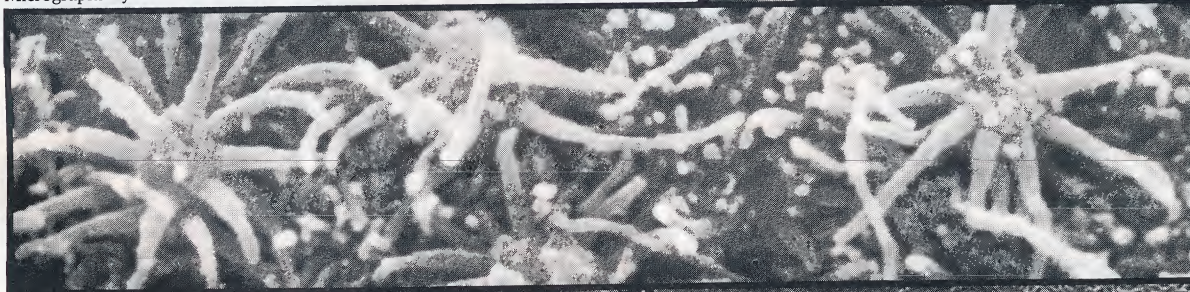
Tissues and Organs is an unusual blend of the aesthetically striking and the scientifically sound. An essential reference for researchers and other professionals in medicine, biology, and pharmacology, this volume makes an important contribution to individual and institutional libraries.

*"The combination of scanning electron micrographs, microvascular casts and clear illustrations provides a comprehensive and unforgettable vision of tissue and organ anatomy."—David W. Deames, University of California, Davis
1979, 317 pages, 715 illustrations, hardbound \$30.00
Special Price \$25.50 (softbound \$12.00)

Micrographs by Kessel and Kardon



Alveoli of lung



Olfactory sensory cells



Cortical lens fibers of the eye



Stratified squamous epithelial cells of the hard palate



Lucas Cranach d.Ä., *Das Goldene Zeitalter*, courtesy München, alte Pinakothek, from *Paradoxes of Progress*

Paradoxes of Progress

Gunther S. Stent, University of California, Berkeley

Drawing on his own research in molecular genetics and neurobiology, Gunther S. Stent argues that, because "scientific knowledge, like our universe, must be finite and the most significant laws of nature will soon have been discovered," progress as we have known it is nearing an end. *Paradoxes of Progress* examines the contradictions—ethical, psychological, material, cognitive—that render progress self-limiting. It discusses the sociology of science, the process of scientific and artistic creativity, and the relation of science to morals. It confronts the technical and intellectual obstacles that may prevent us from ever wholly understanding ourselves. For all readers interested in the science and philosophy of the present and future, *Paradoxes of Progress* will prove controversial, thought-provoking, and exciting.

1978, 231 pages, 17 illustrations, hardbound \$13.00 **Special Price \$11.05** (softbound \$6.95)

Human Nutrition

Readings from *Scientific American*

With Introductions by

Norman Kretchmer and William van B. Robertson
Stanford University School of Medicine

Human Nutrition provides a convenient, comprehensive collection of articles reflecting current thinking about food and nutrition. In compiling this book, Norman Kretchmer and William van B. Robertson have emphasized not only the great variety of nutritional subjects but the important relationships between them as well. The topics are drawn from the social sciences and the life sciences alike, ranging from cell physiology and global demography to food additives and world hunger.

"Ideal not only for students of home economics and nutrition but for general readers who want to go beyond the fad diet books in their concern to know how we are to achieve a balanced diet for the world's millions."

—*New Scientist*

1978, 275 pages, 210 illustrations, hardbound \$15.25

Special Price \$12.96 (softbound \$7.95)



Detail from *Kermesse at Hoboken* by Bruegel, courtesy of the Courtauld Institute of Art, London, from *Cancer: Science and Society*

Cancer Science and Society

John Cairns, Mill Hill Laboratories, London

"The best book that I have read explaining cancer to the intelligent layman."

—Bruce N. Ames, University of California, Berkeley

A common cause of death in the industrialized Western world, cancer is one of the most feared of all diseases. Dispelling the misinformation surrounding cancer, John Cairns reviews its nature, its causes, its place among other diseases, the current state of research, and the prospects for its final conquest. He convincingly argues that cancer is largely due to controllable variables in the human environment and should therefore be preventable.

Written clearly but never simplistically, *Cancer: Science and Society* is for the general public as well as for physicians, medical students, and students of biology.

1978, 199 pages, 52 illustrations, hardbound \$13.00 **Special Price \$11.05** (softbound \$7.50)

Immunology, Aging, and Cancer Medical Aspects of Mutation and Selection

F. M. Burnet, University of Melbourne

"Once again, Burnet has produced a book that combines breath-taking and thought-provoking insights, tight reasoning, and superb expression. A sheer delight!"

—John W. Kimball, Tufts University

Nobel Laureate Sir MacFarlane Burnet presents a stimulating, original treatment of the immune response and its relationship to aging and cancer.

"An audacious and successful attempt to scan the wider horizons of immunology and genetics."—*Nature*

1976, 162 pages, 9 illustrations, softbound \$7.50

Molecular Genetics

An Introductory Narrative *Second Edition*

Gunther S. Stent and Richard L. Calendar
University of California, Berkeley

Following the outstanding success of the first edition of *Molecular Genetics*, Gunther S. Stent and Richard L. Calendar now provide a rigorously revised and updated version which includes the many recent developments in this changing field. Key historical discoveries are reviewed in the same narrative style that contributed to the popularity of the earlier edition.

In guiding the reader from the classical genetics of Mendel to the most current discoveries and theories of molecular biology, the authors emphasize the interrelation between experiment, inference, theory, and subsequent experiment.

"A beautiful synopsis of the title topic by outstanding scientists. The senior author has been for decades both a character and an articulate commentator in the multi-faceted play of molecular biology."—David Schlessinger, Professor of Microbiology, Washington University Medical School

1978, 773 pages, 377 illustrations, hardbound \$24.00

Special Price \$20.40

Genetic Recombination

Thinking About It in Phage and Fungi

Franklin W. Stahl, University of Oregon

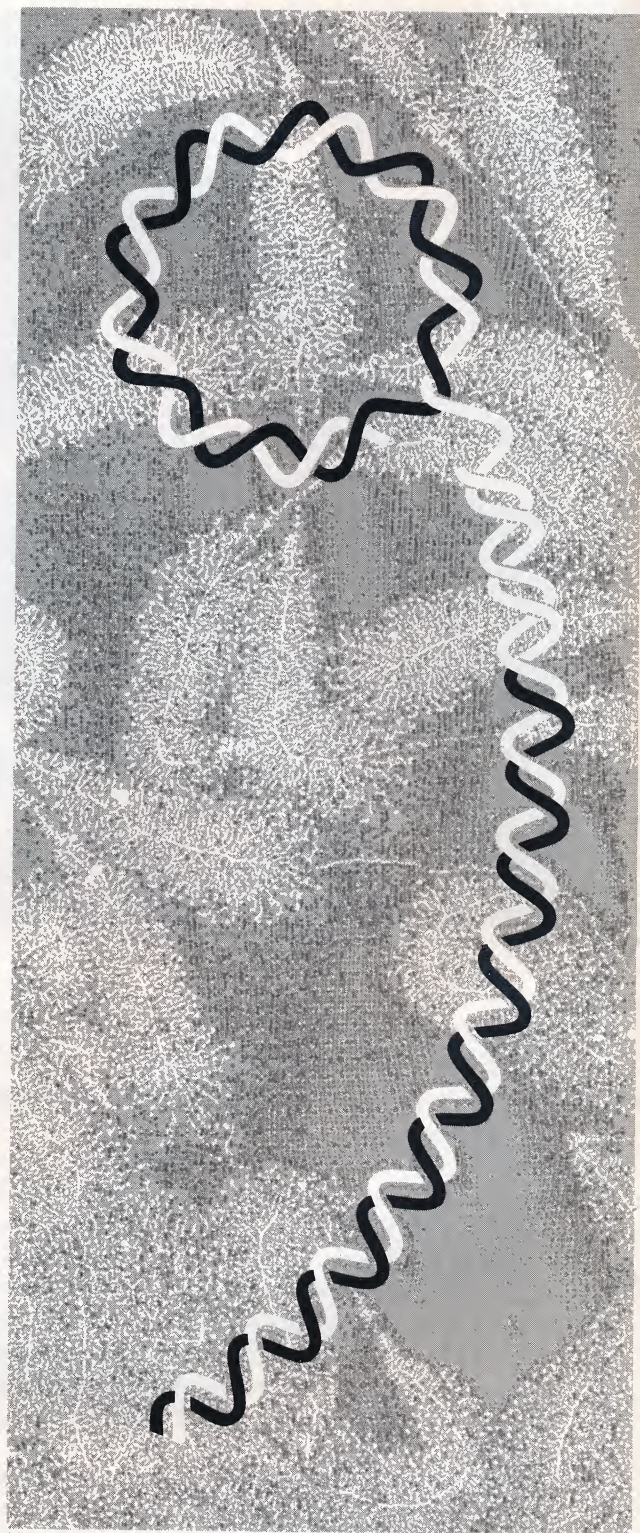
This up-to-date volume develops the major ideas behind our understanding of genetic recombination. Because of the structural simplicity of phage and the ease of genetic analysis in fungi, the most penetrating work is being conducted on these creatures. By focusing on them, the book is able to treat experiments and concepts thoroughly and critically.

Genetic Recombination reviews the classical facts and theoretical frameworks of recombination studies. It describes gene conversion and its association with crossing-over, summarizes the recombination-related biochemistry of DNA, and analyzes molecular models for genetic recombination. The book's approach is clear and straightforward: it uses a consistent, standard vocabulary, includes relevant diagrams directly in the text, and provides problems reviewing basic points and encouraging the reader to think beyond the material presented.

Genetic Recombination presents an unusually clear and cohesive view of an increasingly important aspect of science.

Fall 1979, 333 pages, 264 illustrations, hardbound \$22.50

Special Price \$19.13



Micrograph from O. L. Miller and B. R. Beatty, *Science*, Vol. 164, pp. 955-956, 23 May 1969, © 1969 by the American Association for the Advancement of Science, from *Molecular Genetics*

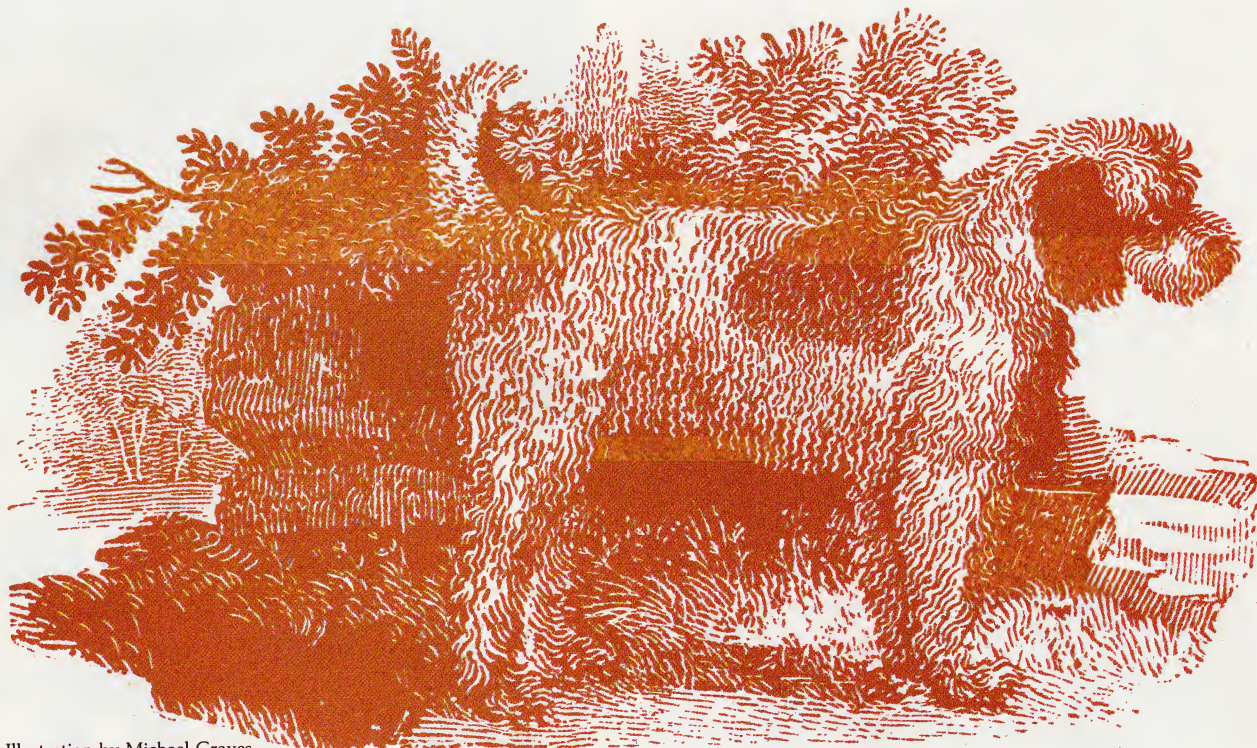


Illustration by Michael Graves

Genetics for Dog Breeders

Frederick B. Hutt, Cornell University

Genetics for Dog Breeders was written in response to appeals from breeders for help in eliminating genetic defects in their animals. It explains the basic principles of genetics; describes tests to detect carriers of genetic defects; discusses what is known about genetic abnormalities of the skeleton, skin, nervous system, blood, eyes, and other parts of the body; covers genetic differences among breeds; and discusses breeding and selection.

This is an excellent resource for dog owners and breeders, as well as for anyone interested in a concrete illustration of practical genetics.

1979, 256 pages, 53 illustrations, hardbound \$15.00

Special Price \$12.75

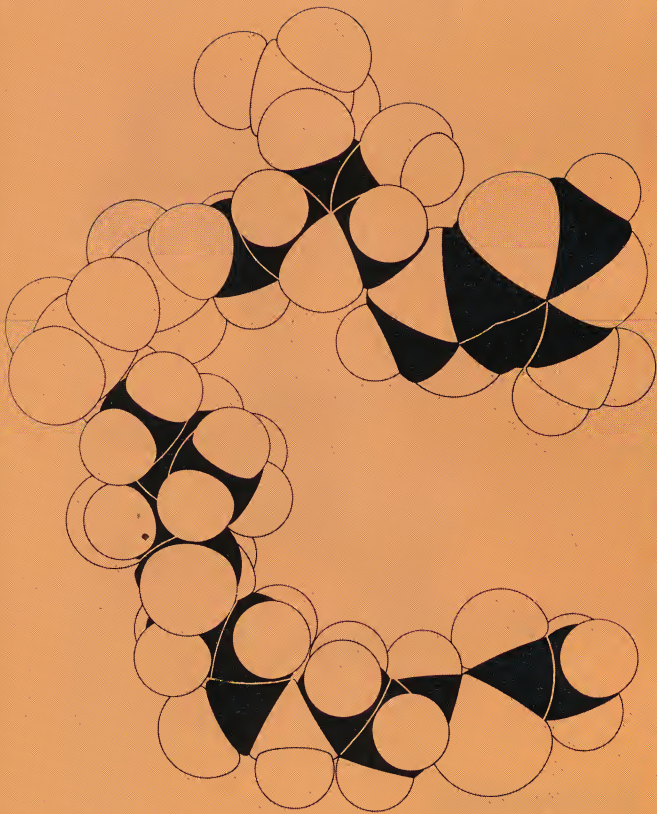
Enzymatic Reaction Mechanisms

Christopher Walsh, Massachusetts Institute of Technology

This book takes a simple and direct approach to the study and analysis of enzyme-catalyzed reactions, with enzyme-catalyzed processes grouped into a few reaction types common in organic chemistry. The book helps the reader to develop chemical intuitions in the context of specific enzyme examples and to see how enzymes impose specificity and rate acceleration, so that he will then be able to analyze the structure of a reactant and to predict the kinds of biological products that are likely to arise given the few chemical pathways open to enzymatic catalysts. *Enzymatic Reaction Mechanisms* is broad yet thorough, and selected references to key original research articles and recent reviews are given.

1979, 978 pages, 107 illustrations, hardbound \$29.50

Special Price \$25.08



Biochemistry

Lubert Stryer, Stanford University

"This must be one of the best biochemistry books on the market. It is certainly the easiest to read and study. The text is lucid and digestible. The figures complement the text in a way which is not normally found in books at this level. . . . For me, difficult concepts in biochemistry (those which I've always avoided) were made so simple it was a pleasure revisiting tricky grounds."—Vic Daniels, *Bios*

"One can open this book almost at any page and discover a brilliant example of artistic expression used to illuminate scientific concepts. But, in addition, the author has an attractive style of writing; and most important, he has something new to say."—*Biochemical Education*

"A thoroughly admirable book by an author who combines a prodigious command of the subject with the ability to present it as lucidly as it seems possible for a book to do."

—*Clinical Chemistry*

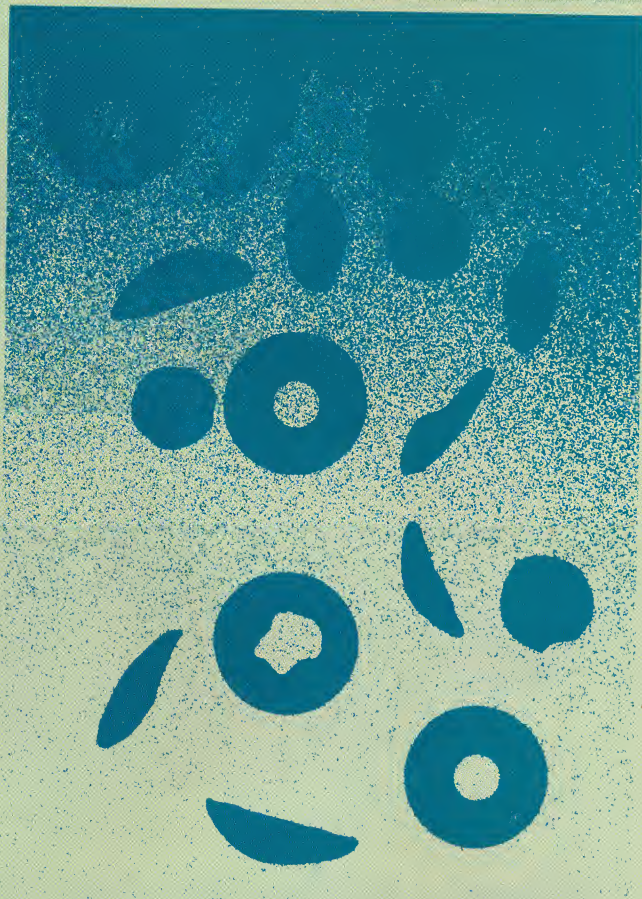
1975, 877 pages, 626 illustrations, 55 tables, hardbound \$27.00
Special Price \$22.95

A Clinical Companion to Biochemical Studies

Victor Schwarz, University of Manchester

Recognizing that the biochemical origin of many diseases and abnormalities is fundamental to the study of medicine, Victor Schwarz has provided case studies demonstrating the close relationship between medicine and biochemistry. The cases chosen for discussion cover a wide range of topics: carbohydrate metabolism, sickle cell disease, lead poisoning, "Chinese restaurant syndrome," the control of calcium metabolism, and many others. As the title suggests, *A Clinical Companion to Biochemical Studies* may be used with other books on biochemistry, but it also provides sufficient clinical and biochemical detail for the reader to understand the case studies and their underlying bases without reference to other works. At the end of each study, the author has posed challenging questions designed to test and expand the reader's understanding. The book is fully illustrated and also provides some suggestions for further reading.

1978, 114 pages, 76 illustrations, hardbound \$16.25
Special Price \$13.81 (softbound \$7.95)





Evolution

Theodosius Dobzhansky

late of University of California, Davis

Francisco J. Ayala, G. Ledyard Stebbins, and

James W. Valentine, University of California, Davis

"Nothing makes sense in biology except in light of evolution."

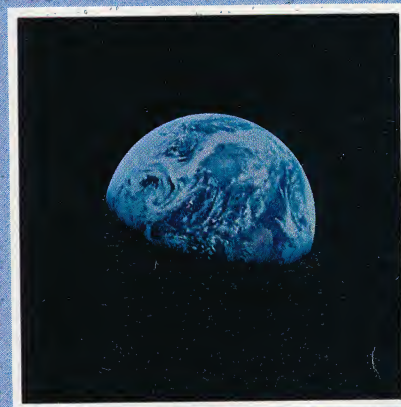
—from the Preface

Evolution is a contemporary synthesis of biological evolution by four distinguished authorities who have combined their insight to provide the most complete view of evolutionary biology available in a single edition. Included are presentations from biology, zoology, botany, anthropology, ecology, molecular biology, and philosophy.

"This profusely illustrated text on evolution by a group of outstanding biologists is essential reading for all interested in modern biology." —*Plant Life*

1977, 572 pages, 141 illustrations, hardbound \$21.50

Special Price \$18.28



NASA

The Origin of Life A Warm Little Pond

Clair Edwin Folsome, University of Hawaii at Manoa

Until recently, we have only been able to speculate about whether life on Earth is unique. But Clair Edwin Folsome reviews key discoveries in astronomy, chemistry, biology and physics over the last century and shows that they all lead to the controversial conclusion that the formation of life on our planet was not extraordinary, but unremarkable and inevitable. In order to predict the future, the book attempts "to scan and re-create the past," leading from the sources of the stars to the sources of life.

1979, 168 pages, 56 illustrations, hardbound \$10.00 Special Price \$8.50 (softbound \$5.50)

Gravitational Curvature

An Introduction to Einstein's Theory

Theodore Frankel, University of California, San Diego

This fresh introduction to gravitational curvature captures the geometric essence of the subject in a modern mathematical setting. Replacing sometimes tedious analytical computations with geometric arguments, the text presents new derivations for Einstein's equations of gravitation along with other results.

The book stresses the global aspects of cosmology and is suitable for independent study as well as for use in classes on differential geometry, relativity, and cosmology. The reader should have a background in basic physics and Riemannian geometry, or some familiarity with relativity theory. Background chapters, with derivations, are included on special relativity, continuum mechanics, and electromagnetism.

1979, 172 pages, 29 illustrations, hardbound \$18.50

Special Price \$15.72 (softbound \$8.95)

Gravitation

Charles W. Misner, University of Maryland

Kip S. Thorne, California Institute of Technology

John Archibald Wheeler, Princeton University

"This is one of the great books of science, a lamp to illuminate this Aladdin's cave of theoretical physics whose genie was Albert Einstein. All science libraries, all relativists, all cosmologists, must buy it, all theoretical physicists should read it, all scientists should dip into it."

—*Science Progress*

"This is a superb book. The authors are internationally known for their own work in relativistic astrophysics and the fundamental theories of gravitation. No less are they known for their abilities as articulate and lucid expositors of their science. . . . There is no comparable treatment of the entire field; this book will be required reading for all those working in, or wondering about, the fascinating new field of gravitational physics."—*American Scientist*

"An unrivalled exposition of one of the supreme theories of mathematical physics."—*American Mathematical Monthly*

1973, 1,279 pages, 137 illustrations, 163 boxes, softbound \$32.50



Moon photographs courtesy of NASA

Physical Chemistry

P. W. Atkins, Lincoln College, Oxford University

This book provides the most up-to-date treatment of physical chemistry available, presenting concepts clearly and showing how qualitative physical ideas are turned into quantitative, testable theories.

"Each chapter is liberally sprinkled with worked examples inserted into the text at strategic points; these support the sense of purpose imparted by the overall structure of the book. A welcome feature is the presentation of an outline account of symmetry theory, with the long overdue implication that this is part of the core material of physical chemistry."—*The London Times Higher Education Supplement*

1978, 1,008 pages, 455 illustrations, hardbound \$23.00
Special Price \$19.55

Electromagnetism Principles and Applications

Paul Lorrain, University of Montreal

Dale R. Corson, Cornell University

By the authors of the more advanced *Electromagnetic Fields and Waves*, Second Edition (W. H. Freeman and Company, 1970), this book gives the reader a *working* knowledge of electromagnetism. Many popular features of the earlier book are found in *Electromagnetism: Principles and Applications*: problems from the current literature, worked examples, and chapter summaries, with the added advantage of true-perspective drawings. Electromagnetic theory is illustrated by 90 examples, and there are 332 problems, many of which relate to modern applications.

1979, 507 pages, 324 illustrations, softbound \$12.50

Introductory Physics

Mashuri L. Warren

San Francisco State University and Lawrence Berkeley Laboratory

Consulting Editor:

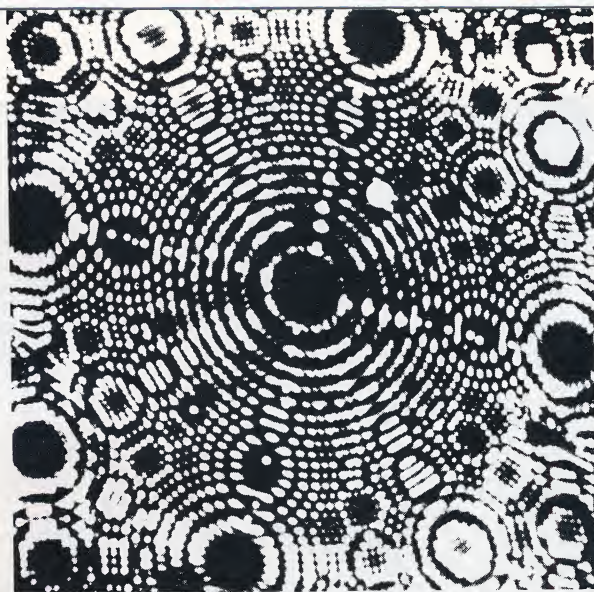
Edwin F. Taylor, Massachusetts Institute of Technology

Warren's concrete approach establishes and reinforces a cumulative and practical understanding of the essentials of basic physics. Concepts are introduced through careful definitions, worked examples, and applications, with mathematical ideas introduced gradually and reintroduced as needed. The book emphasizes experimental physics, explaining the interplay between theory and experiment and drawing on examples from engineering, medicine, industry, biology, transportation, and sports.

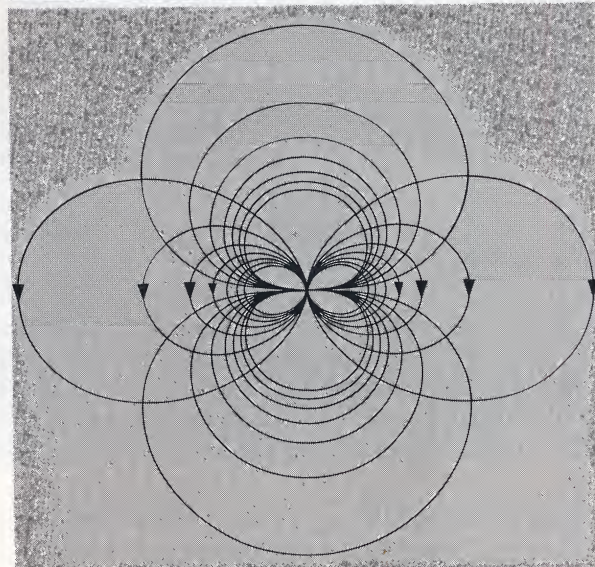
"Warren gives life to basic physics and simultaneously presents all its major concepts in a contemporary setting."

—Patrick Argos, Southern Illinois University at Edwardsville

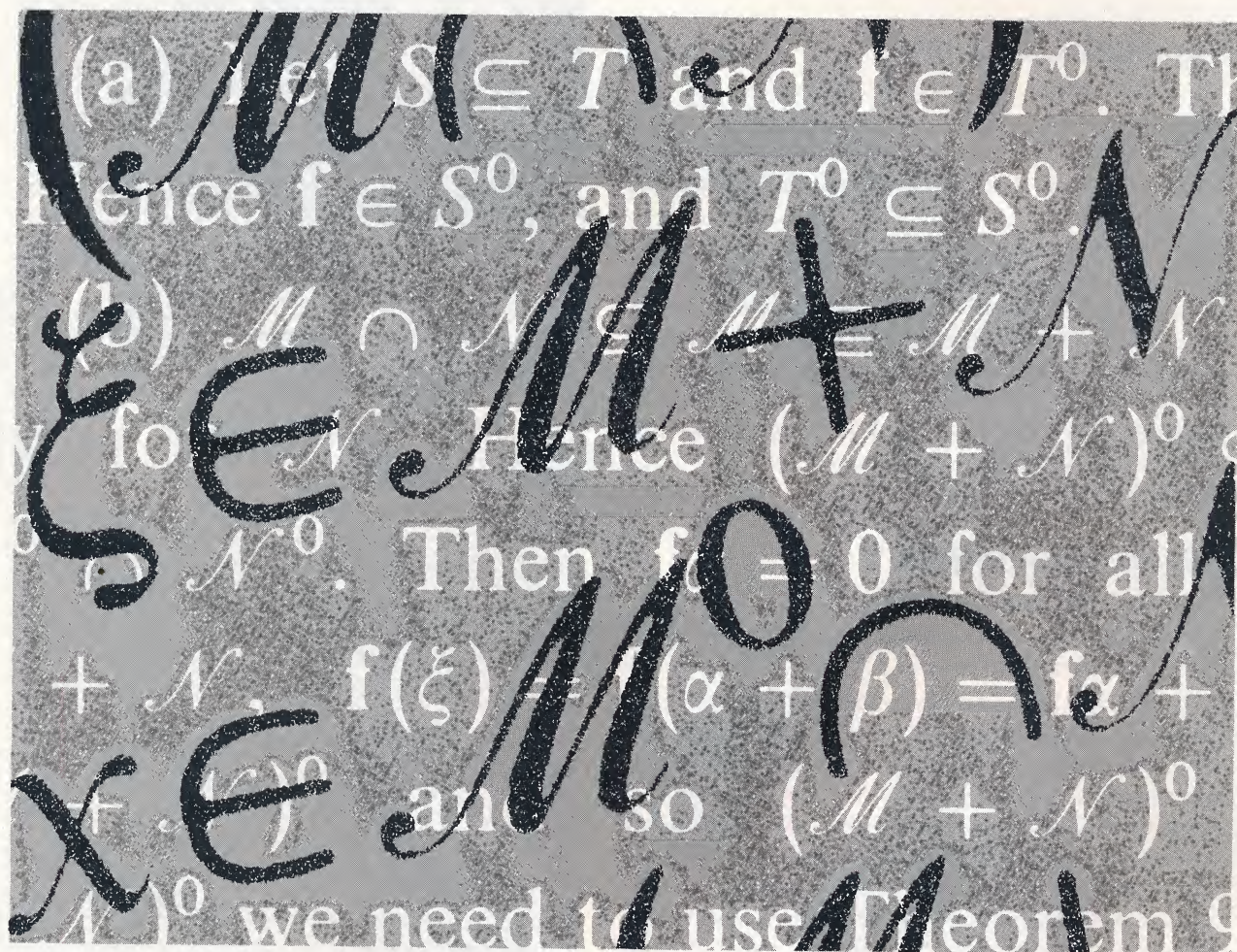
1979, 683 pages, 628 illustrations, hardbound \$18.00
Special Price \$15.30



Courtesy of E. W. Mueller



Courtesy of Marriott's Great America



Algebra and Trigonometry Refresher for Calculus Students

Loren C. Larson, St. Olaf College

This innovative volume provides an efficient, systematic way of brushing up on the algebra and trigonometry necessary for calculus. The table of contents for *Algebra and Trigonometry Refresher* is a diagnostic device enabling readers to pinpoint those areas they might need to review and to bypass concepts they have mastered. For each section in the book, a couple of typical problems are given in the table of contents. If these problems prove insoluble, the reader turns to the corresponding section of the book, where he finds an explanation of the concept, worked examples, and exercises for practice.

The Refresher is not only an ideal self-paced program for review of algebra and trigonometry, but an excellent reference whose organization and concision make it unusually accessible.

1979, 216 pages, softbound \$5.95

Introduction to Matrices and Linear Transformations

Third Edition

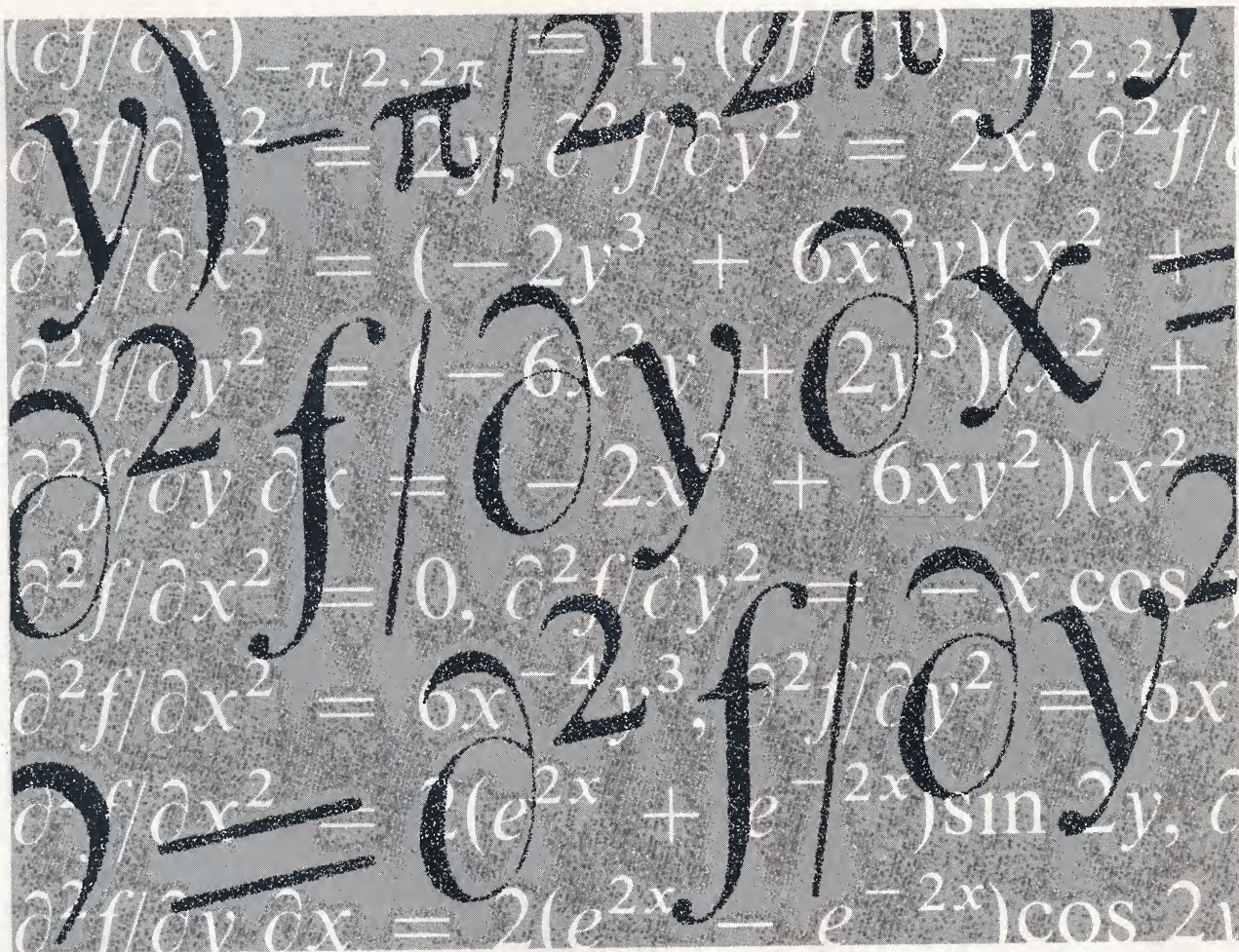
Daniel T. Finkbeiner II, Kenyon College

This is a new edition of a book that has won praise for its logic and clarity. Maintaining these standards, Daniel Finkbeiner has substantially revised and modernized the book, adding more examples and new exercises and expanding the solutions section to include explanations as well as answers.

From a solid mathematical base, the book eases the reader from the familiar problem of solving a system of linear equations to more complex material. The central theme of linearity is presented clearly and practically, with simplified notation and without unnecessary abstraction. An appendix containing background material is provided for those wishing a review of introductory calculus.

1978, 462 pages, 34 illustrations, hardbound \$18.50

Special Price \$15.72



Calculus for the Life Sciences

Rodolfo DeSapio, University of California, Los Angeles

Calculus is the mathematical language specifically designed to describe and analyze dynamics. Today there is a growing need for an appreciation of the dynamic element in biological systems, be they ecosystems threatened by instabilities or patients responding to drug therapies. *Calculus for the Life Sciences* demonstrates the biological applications of differential and integral calculus, developing sound mathematical concepts through practical examples.

Calculus for the Life Sciences emphasizes an intuitive approach to calculus and includes a review of algebraic techniques and formulas, diagrams, and exercises ranging from routine to challenging. Answers are included for selected exercises.

"An integration of life science and mathematics in aptly chosen and refreshingly different settings."

—*Quarterly Review of Biology*

1978, 740 pages, 461 illustrations, hardbound \$18.50

Special Price \$15.72

Calculus

A Short Course with Applications to Business, Economics, and the Social Sciences

Gerald Freilich, Queens College

Frederick P. Greenleaf, New York University

This calculus book takes an intuitive approach, stressing applications. A strong background in mathematics is not a prerequisite for understanding. Chapter One provides a concise review of all necessary mathematics, including elementary algebra, graphs, and the concept of a function. Subsequent chapters provide a clear, readable account of the basic topics of the calculus. Detailed case study applications drawn from subjects such as business and economics are used to clearly illustrate the significance of newly introduced mathematical concepts.

"A welcome and unusual feature for a book of this type is the inclusion of a substantial amount of two-variable calculus, including a brief mention of the method of Lagrange multipliers."—*Mathematical Gazette*

1976, 395 pages, 132 illustrations, hardbound \$16.00

Special Price \$13.60

Statistics

Concepts and Controversies

David S. Moore, Purdue University

Most books on statistics are either relatively abstract works on theory or methods, or popular books with little substance. *Statistics: Concepts and Controversies* focuses on statistical ideas and their impact on society. Moore does not burden readers with a mass of algebra but leads directly to the heart of statistics with careful explanations. The material included in this volume deals with the interaction between statistics and everyday life, as well as with the concept of statistics itself, discussing opinion polls in the political process, the ethics of experimentation with human subjects, and the use and misuse of IQ scores. The book includes a number of optional exercises to help readers achieve an active understanding of the relationship between statistics and society.

1979, 313 pages, 88 illustrations, hardbound \$15.00

Special Price \$12.75 (softbound \$6.95)



"Should we scare the opposition by announcing our mean height or lull them by announcing our median height?"

Arithmetic and Calculators

How to Deal with Arithmetic in the Calculator Age

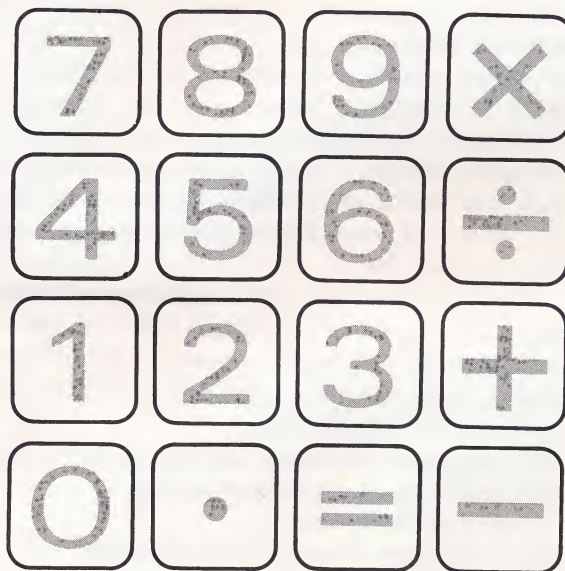
William G. Chinn, San Francisco City College

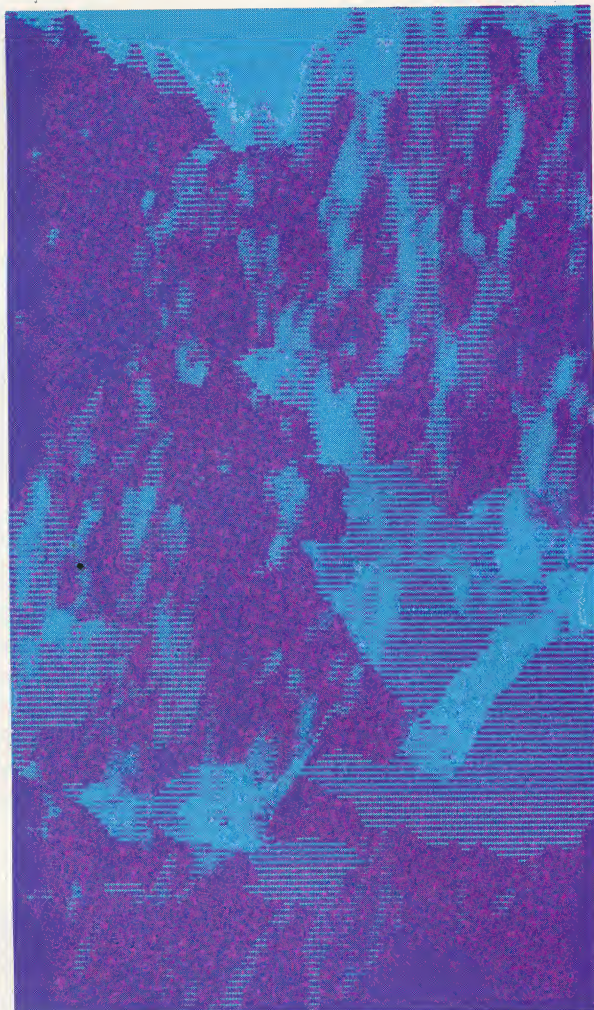
Richard A. Dean, California Institute of Technology, Pasadena

Theodore N. Tracewell, California State University, Hayward

Arithmetic and Calculators will help even the number-shy reader readily understand mathematical ideas. Used with any four-function eight-digit calculator, this book covers both the theory and practical utility of calculators in a variety of situations. By supplying an intriguing range of concrete examples, word problems, and applications, the authors help the reader to master basic mathematical principles, to use the calculator effectively in solving everyday problems, and to understand the underlying concepts of algebra. Written in a conversational style and illustrated with 260 line drawings, *Arithmetic and Calculators* gives the reader a working knowledge of the first generally available computing aid since the abacus.

1978, 488 pages, 266 illustrations, hardbound \$18.00 Special Price \$15.30 (softbound \$9.95)





Computer-generated illustrations from *Fractals*



Fractals

Form, Chance, and Dimension

Benoit B. Mandelbrot, IBM Fellow, International Business Machines Corporation, Thomas J. Watson Research Center

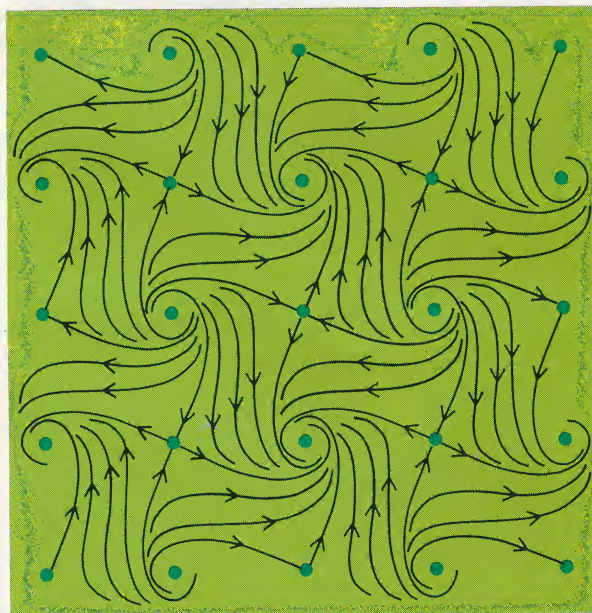
"The new and fascinating world of patterns presented here is all the justification this book needs. Read it, or better yet, look at the pictures. It is inconceivable that it would fail to give some food for thought."—*American Scientist*

Fractals: Form, Chance, and Dimension is an intriguing investigation that claims the geometry of fractals is necessary to describe geometric shapes in nature. Mandelbrot examines fractal applications for describing the surface of the earth, the clusterings of stars, and the shapes of clouds, snowflakes, and other natural forms.

"An unusual, original, and thoroughly remarkable exploration of an area of pure and applied mathematics that opens up prospects whose significance is too early to speculate upon—but it just may be immense."—*Choice*

1977, 365 pages, 68 illustrations, hardbound \$18.50

Special Price \$15.72



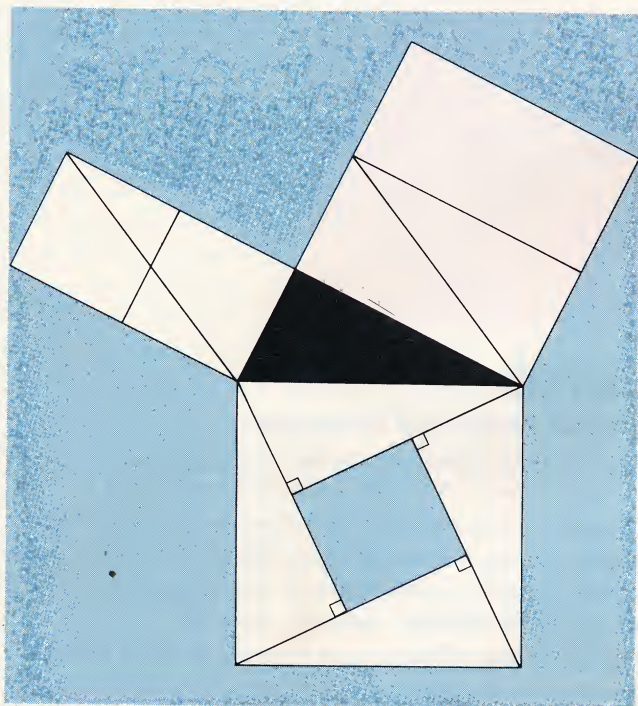
A Combinatorial Introduction to Topology

Michael Henle, Oberlin College

This book treats algebraic topology by concentrating on one basic tool: homology. The author develops this tool by concrete combinatorial methods, avoiding excessive algebraic abstraction. The topology in the plane and on other surfaces is emphasized so that results can be presented concretely and geometrically. The book is extensively illustrated, written with exceptionally engaging clarity, and filled with exercises that develop theory and application alike. *A Combinatorial Introduction to Topology* presumes some background in calculus.

1979, 310 pages, 165 illustrations, hardbound \$18.50

Special Price \$15.72



How to Solve Problems Elements of a Theory of Problems and Problem Solving

Wayne A. Wickelgren, University of Oregon

The general problem-solving methods described in this book virtually guarantee that you will never again have a blank mind when trying to solve a problem.

Each chapter of *How to Solve Problems* considers a method for analyzing and systematizing mathematical problems, using examples that include chess problems, logic puzzles, railroad switching problems, and frequently encountered problems in science and engineering. The author provides hints to the solutions, but you are encouraged to arrive at an answer independently. If the problem is still unsolved after the hint, a complete solution is presented.

"Built upon some of the ideas of Newell, Simon, and Polya, the text is written in a readable, interesting, and straightforward manner; it is a practical how-to-do-it book."—*Choice*

1974, 262 pages, 73 illustrations, softbound \$7.50

aha! Insight

Martin Gardner

Author of the popular monthly column in *Scientific American*, "Mathematical Games"

"The creative act owes little to logic or reason. . . . Indeed, it seems to occur most readily when the mind is relaxed and the imagination roaming freely."

—Morris Kline, *Scientific American*

What goes on in a person's mind when he or she solves an important problem with a single flash of insight? How does somebody come up with a short, elegant solution to a seemingly difficult problem? Psychologists call these hunches *aha!* reactions, which have no relationship to general intelligence or quickness of thought. There is, however, a close connection between *aha!* reactions and creativity in science, business, and everyday activity.

This book is an intriguing selection of problems and puzzles that seem—and indeed are—difficult to solve using traditional methods, but which can be solved in an instant once the key, the *aha!*, is grasped. Added notes and comments indicate how these puzzles lead to significant aspects of modern mathematics. Some of the puzzles lead to intriguing unsolved problems.

aha! Insight is a challenging book intended for anyone with a sense of humor and the desire to make problem solving a pleasure.

1978, 179 pages, more than 100 illustrations, softbound \$6.50



Handbook for Scientific Photography

Alfred A. Blaker, RBP

"A compact source of useful and practical information about photography in the laboratory, or for laboratory-related purposes."—*The Professional Photographer*

Designed to assist both professional and amateur scientists in the production of publication-grade still photographs, this authoritative handbook can be used by anyone with a minimal background in photography.

The author emphasizes techniques in still photography that produce clear, informative illustrations, giving special attention to lighting, closeup flash photography, photomacrography, photomicroscopy, stereo photography, and the use of color filters. There are solutions to general problems in scientific photography, like the control of reflections and motions, and the lighting of spheres and cylinders. Methods for photographing a great variety of specific subjects are discussed in detail. The final chapters of the text offer clear descriptions of the techniques of copying and slide making, and the preparation of photographs for publication and viewing.

1977, 319 pages, 115 illustrations (16 in full color), hardbound \$24.95 Special Price \$21.21

Field Photography Beginning and Advanced Techniques

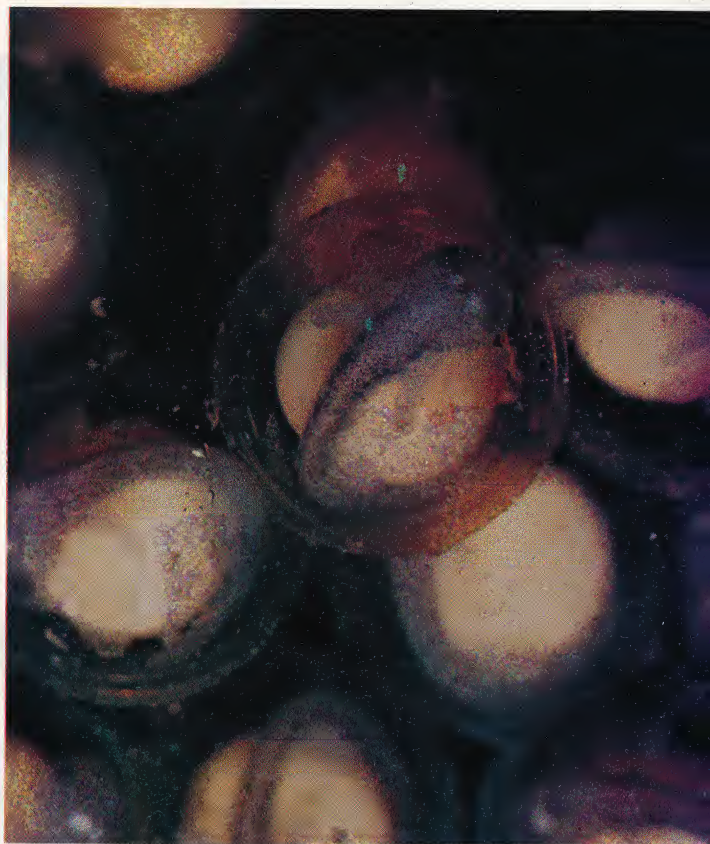
Alfred A. Blaker, RBP

"In my 25 years in photography I have not come across a more exciting and meaningful text. It blends the technical with the practical, not as two separate tracks, but as one. I know of no other book in photography that accomplishes this so well. . . . One need only leaf through these visuals, read the captions and easily extend his photographic knowledge and vision."—Richard D. Zakia, Professor of Photography, Rochester Institute of Technology

"A major tract on photography as a science . . . includes everything from anti-litter warnings and tips on working in bad weather to high-resolution techniques so vital in scientific documentation, where small things must be made big. Micrography and macrography and an analysis of available equipment are particularly well handled."—*Publishers Weekly*

"This very well-put-together book is highly recommended to scientists who use photography in their work and to photographers who may have occasion to work with scientists in a professional capacity."—*BioScience*

1976, 451 pages, 156 illustrations (18 in full color), 48-page Field Supplement, hardbound \$22.00 Special Price \$18.70



Top: eggs of the salamander *Ensatina eschscholtzi*, from *Handbook for Scientific Photography*; bottom: cactus flower, from *Field Photography*. Photographs by Alfred A. Blaker.



Now in Paperback

Botanical Prints

With Excerpts from the Artist's Notebooks

Henry Evans

New in paperback, this is a work of visual and verbal beauty. Self-taught as a botanist and artist, Henry Evans has perfected a style at once personal and botanically faithful, unerring in its feeling for rhythm and design.

The 33 full-color plates and 29 black-and-white reproductions in *Botanical Prints* are complemented by revealing excerpts from Evans' notebooks, providing a firsthand account of his artistic philosophy and technique.

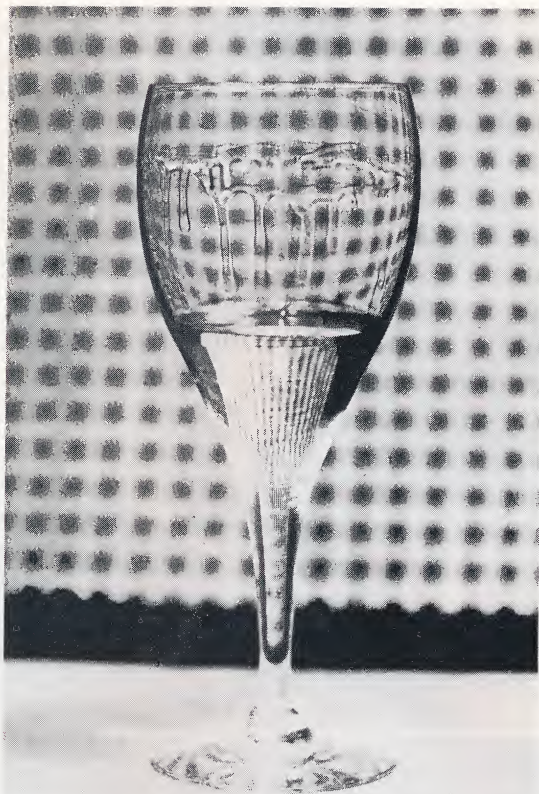
"Gorgeous . . . As appealing as the prints themselves are Evans' lucid notes on how he works, which are down to earth and would be of value both to artists and to those who want to understand artistic processes."—*San Francisco Examiner*

'Through classical linocut techniques, Evans presents a refreshingly modern view of the 'beauty and elegance of plant forms.' The colors are bold without being false, and the composition of each print is exquisite."

—*The Quarterly Review of Biology*

1977, 67 pages, 62 illustrations (33 in full color),
hardbound \$25.00 **Special Price \$21.25** (softbound \$11.95)

Anemone, probably
Anemone coronaria



Photograph by Alfred A. Blaker

Wines

Their Sensory Evaluation

Maynard A. Amerine and Edward B. Roessler
University of California, Davis

Making a sound judgment about the quality of a wine may seem an awesome task, something best left to the experts. But the experts themselves rely upon faculties that virtually everyone possesses—the senses of sight, smell, taste, and touch. Because sensory responses are easily influenced by various physiological, psychological, and cultural factors, wine evaluation can be a highly subjective process. *Wines: Their Sensory Evaluation* tells how to minimize these factors so that more consistent, objective evaluations can be made.

This authoritative and practical book is an excellent reference for the serious amateur, the wine professional, and the wine connoisseur.

1976, 230 pages, 41 illustrations, hardbound \$11.00

Special Price \$9.35



Photograph by Paulette, courtesy of the
American Saddle Horse Breeders Association

The Horse

J. Warren Evans
University of California, Davis

Anthony Borton
University of Massachusetts, Amherst

Harold F. Hintz, Cornell University

L. Dale Van Vleck, Cornell University

"Even if you already have a library of 'horse books,' this one should be added to it as one of the best and most authoritative volumes on the subject."—*The Quarterly Review of Biology*

The Horse is an all-inclusive source book written by some of the world's leading experts on horses. The topics presented run the gamut from mounting, grooming, and tack to genetics, nutrition, and health. A removable color chart depicting all possible coat colors is also included.

"This volume is authoritative and is consequently the most up-to-date and complete book on horses available. One of the strongest features is the total of over 300 superb illustrations."—*Choice*

"*The Horse* is the best of its kind. . . . The book is a must for any serious horseman, and would be valuable to any horse lover."—*American Veterinary Medical Association*

1977, 766 pages, 343 illustrations, hardbound \$25.00

Special Price \$21.25

"A far-ranging treatment of energy, its origins, uses and prospects . . . reveal[s] great imagination and breadth of vision."

—The Wall Street Journal

Energy From Heaven and Earth

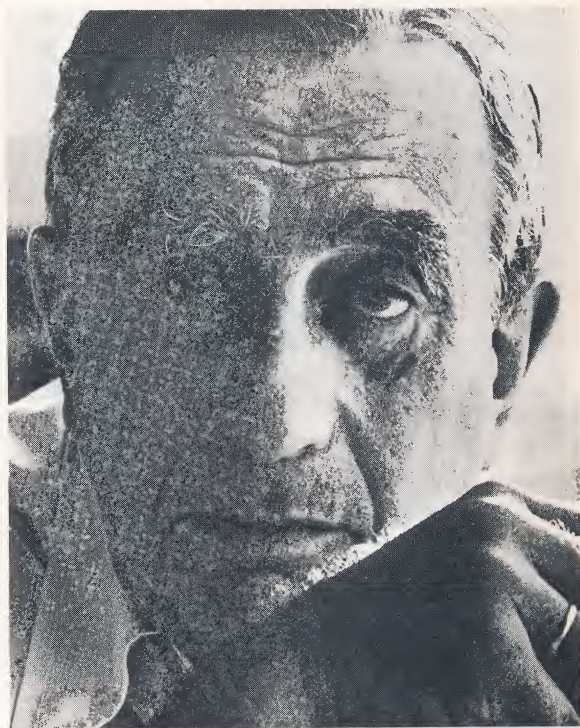
Edward Teller

In his newest book, world-famous physicist, author, and lecturer Edward Teller takes a cautiously optimistic view of the world energy situation, stressing the balance and foresight necessary to any successful mastery of the crisis.

"No single prescription exists for a solution to the energy problem. Energy conservation is not enough. Petroleum is not enough. Coal is not enough. Nuclear energy is not enough. Solar energy and geothermal energy are not enough. New ideas and developments will not be enough by themselves. Only the proper combination of all of these will suffice."—from the Introduction

1979, 322 pages, 61 illustrations, hardbound \$15.00

Special Price \$12.75



Edward Teller, photo by Judah Passow

Petroleum Geochemistry and Geology

John M. Hunt, Woods Hole Oceanographic Institute

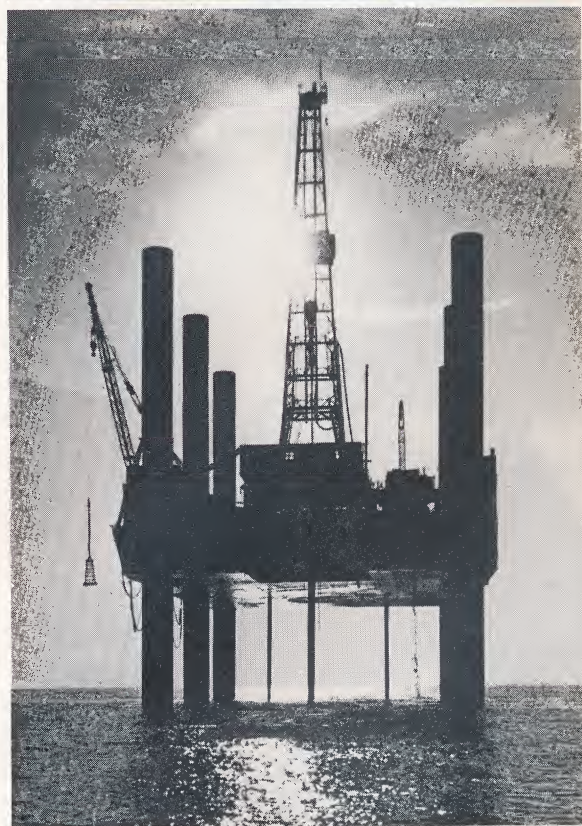
"The scope of the book is immense, and it is truly a happy blend of chemistry and geology as related to petroleum. Following an introductory section (Part I) on carbon and the composition of petroleum, Part II of the book consists of three extensive chapters on how oil forms, how gas forms, and how they both migrate and accumulate. Part III is a two-chapter discussion of source and reservoir rocks. Part IV, titled 'Applications,' deals with seeps and surface prospecting, subsurface prospecting, crude oil correlation, and prospect evaluation. Abundant tables and figures, chapter summaries, and copious literature references at the end of the book add greatly to the clarity and usefulness of the work. . . .

"I trust that all who are interested in petroleum—the second most abundant fluid in the earth's crust after water—whether for the sake of pure science or for commercial exploration, whether in academia or as professional, practicing explorationists, will take occasion to read, study, and ponder this outstanding volume."—from the Foreword by

Hollis D. Hedberg, Professor of Geology (Emeritus), Princeton University

1979, 617 pages, 221 illustrations, hardbound \$30.00

Special Price \$25.50



Courtesy of Mobil Oil Corporation



Photographs of Mt. Shasta (top) and the San Andreas Fault (center) by John S. Shelton, from *Geology Illustrated*; NASA photograph from Apollo 7 (bottom) from *Earth*, Second Edition.

Geology Illustrated

John S. Shelton

Drawings by Hal Shelton

"Although written for the interested layman, this book should appeal to the student of geology at any level. It is also unique in that a reader need not start at the beginning, because each small section is more or less self-contained. I can think of no better book for showing a nongeologist quickly and succinctly what our science is all about."

—John Snyder, American Geographical Institute, in *Geotimes*

"This beautifully illustrated book does an admirable job of providing a basic treatment of the field of geology for the 'educated layman'; at the same time it provides the geologist-reader with many fine pictures and line drawings of geologic features. . . . The author is to be commended for providing the professional with a book that is both factually sound and well written, one which at the same time beautifully illustrates classic geologic areas and the effects of the various geologic processes. The presentation of the idea of geologic time and the complex history of a region through a pictorial presentation of the sequence of the area around the Grand Canyon serves to illustrate many geologic principles and the interpretative aspects of historical geology."

—*The Geochemical News*

1966, 434 pages, 382 illustrations, hardbound \$19.95

Special Price \$16.96

Earth Second Edition

Frank Press, Massachusetts Institute of Technology

Raymond Siever, Harvard University

"A book as good as this, and with such a wide appeal, can arise only from the most fortunate match of authors, publishing techniques, and subject matter. . . . [The reader] will find here a lucid and wide-ranging review of recent results and modern interpretation. The basic approach has been to describe geological processes within the conceptual framework of plate tectonics."—*Geophysics*

Frank Press and Raymond Siever have teamed up again to produce a second edition of their highly acclaimed geology book. This new edition maintains the high standards set by the first, while integrating the newest discoveries of plate tectonics, oceanography, geochemistry, geophysics, and planetary geology. It also includes up-to-date discussions of such basic geological topics as geomorphology, sedimentation, petrology, volcanism, and structural geology.

The book is divided into three major concepts of the earth's dynamics—Earth as a planet in space, Earth's surface and atmosphere, and Earth's internal structure and processes.

"A thorough, up-to-date introduction to the predominantly geophysical aspects of the earth sciences."—*Search*

1978, 649 pages, 674 illustrations, hardbound \$18.50

Special Price \$15.72

Ancient Native Americans

Edited by Jesse D. Jennings, The University of Utah

Ancient Native Americans presents a complete and up-to-date view of the major cultures in the New World before the arrival of the Europeans. It provides a concise survey of American Indian civilization, tracing its evolution from the Arctic Circle to land's end in Patagonia. Written especially for this book by leading specialists, each chapter provides an authoritative summary of a particular culture and region and includes its own selected bibliography. *Ancient Native Americans* incorporates many recent advances in knowledge into its straightforward, jargon-free text, which is enhanced by more than 200 illustrations, including many original drawings from the Utah Museum of Natural History.

1978, 698 pages, 220 illustrations, softbound \$19.95

"Will help you to enjoy your travels in North America."—The Canadian Field-Naturalist

Natural Regions of the United States and Canada

Charles B. Hunt, The Johns Hopkins University

"Just open this book to an area you already know. Within pages, the landforms, soils, colors, plants, and importance of your watershed will intensify. An encyclopedia of physiography written in academic style. Lots of maps. Lots of geologic history. The best book to practice mapping North America into your mind."

—*Whole Earth Catalog*

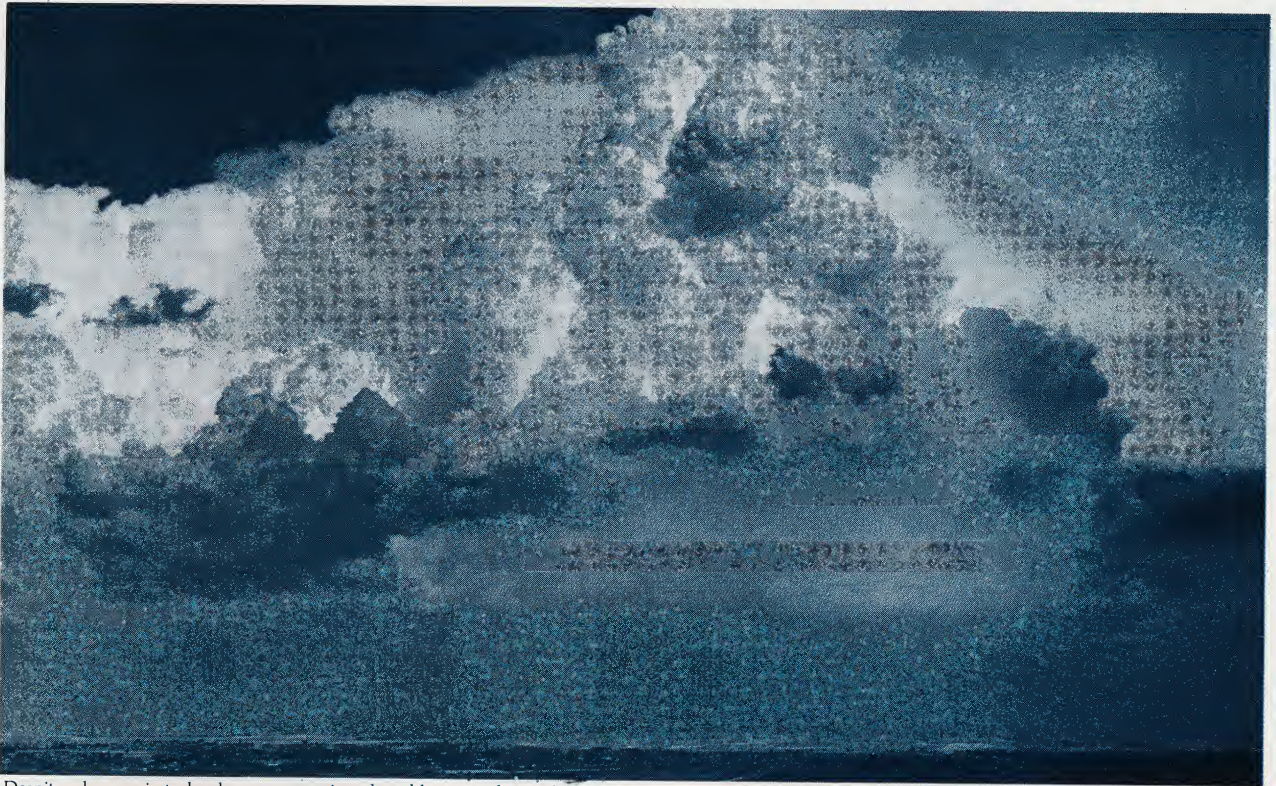
"The story is told with interesting words and literally hundreds of maps, diagrams, sketches, and photographs to illustrate the landforms and other natural phenomena that, in fact, control the destiny of the area and the people living in it. A fascinating book to read and look through."

—*Gems and Minerals*

1974, 725 pages, 558 illustrations, 22 tables, hardbound \$19.50 Special Price \$16.57



Photo by Marc Gaede, from *Ancient Native Americans*



Despite advances in technology, we remain vulnerable to weather and climate extremes. *The Climate Mandate* shows how fluctuations in climate can affect the world's supply of food. Photograph by Charles Semmer, National Center for Atmospheric Research.

An Essential Work on a Crucial Topic

The Climate Mandate

Walter Orr Roberts, Aspen Institute for Humanistic Studies
Henry Lansford

The Climate Mandate provides a clear understanding of climatic fluctuation and its economic, social, and political implications. Bringing together information from a variety of endeavors—atmospheric science, agriculture, social and economic history—the authors present a unified, accessible view of their topic.

"We wrote the book because we believe it is critically important for as many people as possible to understand and accept the fact that the quality and character of human life over the coming decades will be determined largely by three closely related influences: climatic variation, food production, and population growth. Although each of these elements is the product of many interactions and they interact with one another in complex ways, we believe that it is possible for an intelligent reader who is not a specialist in any of these fields to understand the nature and extent of their interactions and impacts on the lives of all the people of our planet."
—from the Preface

1979, 197 pages, 52 illustrations, hardbound \$10.95
Special Price \$9.30 (softbound \$5.95)

Ecoscience

Population, Resources, Environment

Paul R. Ehrlich and Anne H. Ehrlich
Stanford University

John P. Holdren, University of California, Berkeley

"The ultimate book on the future of our planet."
—Maurice Strong, First Director of the United Nations
Environmental Programme

"The most complete analysis yet of the evidence, the essential principles and analyses that bear on the human predicament. . . . This book is extraordinarily ambitious and extraordinarily successful. It is unlikely to be superseded for decades."—*Search*

"A blockbuster classic. . . . Its 1,050 pages, 370-plus illustrations and more than 1,000 references contain the stuff of several books."—*Sierra*

"*Ecoscience* combines the timely and timeless, hard science with social science, into a clearly readable discourse. . . . It is a truly awesome achievement."
—Stephen H. Schneider, National Center for Atmospheric Research

1977, 1,051 pages, 420 illustrations and tables, hardbound \$39.95
Special Price \$33.95 (softbound \$19.95)

"The real mantle of Arthur Eddington and James Jeans, the great communicators of a previous generation of astronomers, has . . . fallen on Bill Kaufmann . . . who is producing a steady stream of clear, well-written books, comprehensive enough to be used as texts yet lucid enough to be read for pleasure."

—New Scientist

Galaxies and Quasars

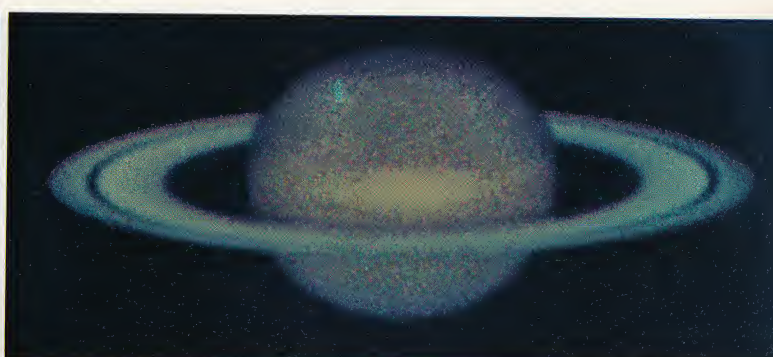
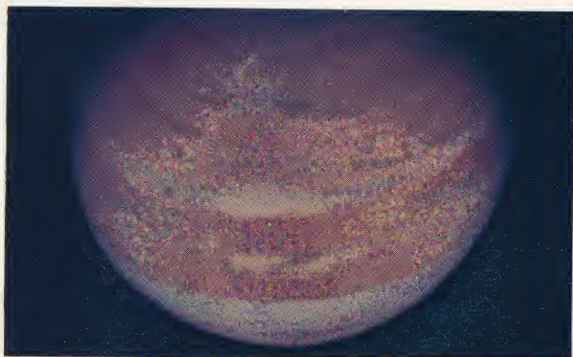
William J. Kaufmann, III, San Diego State University

The largest and most luminous objects known, galaxies and quasars were discovered only in the past fifty years. Yet they have already helped astronomers explore some fundamental questions about the universe: Is space infinite? How and when was the universe born, and how and when will it die? What does our own Milky Way Galaxy look like to an observer in distant space? Why can't we see the possibly limitless number of stars actually present in the night sky? Why do Einstein's theories work better than Newton's on a cosmic scale? *Galaxies and Quasars* suggests some fascinating answers.

This clear and engaging book is enhanced by numerous photographs and drawings, as well as historical anecdotes (a nineteenth-century experiment using an orchestra of trumpeters on a railroad flatcar to demonstrate the Doppler effect, for instance) and imaginative analogies to readers' everyday experiences (including an explanation of the expanding universe in terms of a rising raisin cake). *Galaxies and Quasars* will attract any reader intrigued by the progress of science on an enormous, perhaps infinite, scale.

1979, 226 pages, 115 illustrations, hardbound \$14.00 **Special Price \$11.90**
(softbound \$7.50)

NGC 5128, Radio Source Centaurus A, © 1975 by the Association of Universities
for Research in Astronomy, Inc.



"An erudite and informative book." —Publishers Weekly

Planets and Moons

William J. Kaufmann, III, San Diego State University

Planets and Moons takes readers on a tour of our immediate astronomical neighborhood—the solar system. Following a dramatic description of the birth of the planets, the book progresses, chapter by chapter, from one planet to the next. The latest and finest NASA photographs reveal craters on Mercury, the oppressive clouds of Venus, the barren deserts of Mars. A chapter devoted to Earth considers the powerful geological forces constantly at work upon, and within, our planet. The book then moves on to Mars and the outer planets, finally examining comets and meteorites and weighing the clues in the search for the origin of life. As captivating as it is informative, as thorough as it is concise, *Planets and Moons* will interest anyone curious about our closest neighbors in space.

"The author does not oversimplify his subject matter; his writing is clear and clipped, directed at the intelligent reader who is curious about the planets and the interrelationships, but who does not have a strong background in astronomy."

—Publishers Weekly

1979, 219 pages, 111 illustrations, hardbound \$14.00 **Special Price \$11.90**
(softbound \$7.50)

Stars and Nebulas

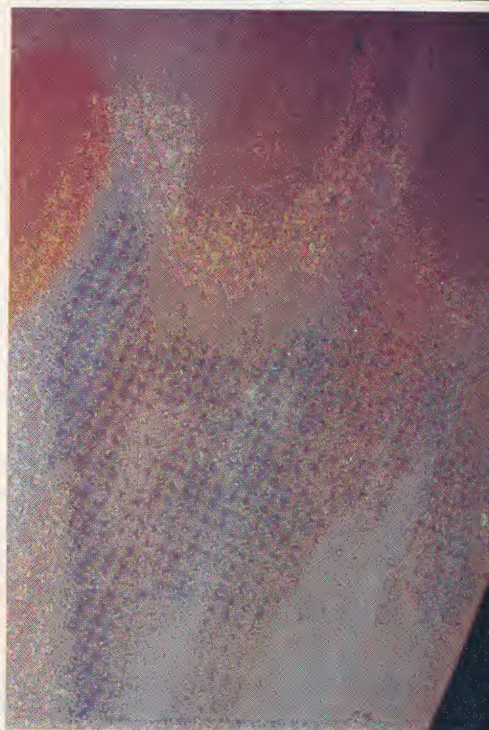
William J. Kaufmann, III, San Diego State University

"In ancient times the workings of the heavens were explained largely by myth and fantasy. The stars and planets were populated with gods, heros, demons, and monsters that ruled everything from eclipses to constellations. But then, only a few hundred years ago, a remarkable revelation profoundly—and permanently—changed the course of humanity. It was discovered that the laws that govern our world are the same laws that dictate the behavior and properties of the planets, the stars, and the universe."—from the Preface

Stars and Nebulas explores and explains some of the mysteries of the night sky. It covers the visible and invisible spectrum of electromagnetic radiation; it traces the life of a star from its birth, through maturity and old age, to its death; it follows the search for mysterious black holes in space and time. Filled with striking illustrations, *Stars and Nebulas* evokes in the modern reader the same primal fascination sparked long ago by myths of celestial heroes and demons.

1978, 204 pages, 104 illustrations (8 in full color), hardbound \$14.00 **Special Price \$11.90**
(softbound \$7.50)

Top three photos courtesy of NASA, from *Planets and Moons*; bottom: Eta Carinae Nebula (NGC 3372) in Carina, © Association of Universities for Research in Astronomy, Inc./The Cerro Tololo Inter-American Observatory, from *Stars and Nebulas*



Discovering Astronomy

Robert D. Chapman, NASA-Goddard Space Flight Center

Robert D. Chapman, winner of the 1974 Science Writing Award from the American Institute of Physics, examines the discoveries that have revised our picture of the cosmos.

"The author is as concerned with *how* we understand the universe as he is with *what* we learn about it. Chapman's quite successful use of this approach gives his book conspicuous strength."—*Sky and Telescope*

1978, 518 pages, 463 illustrations, hardbound \$21.50

Special Price \$18.28 (softbound \$13.00)

Stars

Their Birth, Life, and Death

Iosif S. Shklovskii, Sternberg Astronomical Institute, Moscow

University, and Institute for Space Research, USSR Academy of Sciences

Translated by Richard B. Rodman, Harvard College Observatory

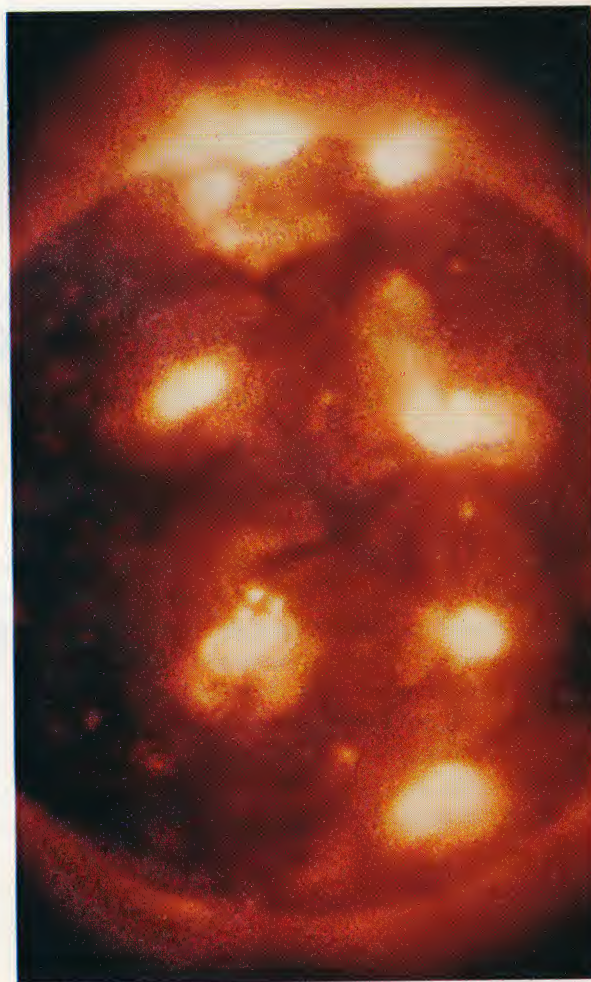
Foreword by Carl Sagan—Prologue by J. P. Ostriker

"There is much in this book which will attract the intelligent layman with no professional interest in astronomy; but also . . . there is much that will make this book essential for students of astronomy as well as for professional astronomers."—Carl Sagan

"What makes this 'serious popular book' (in the author's own words) so exciting is the closeness of many thrilling discoveries to Shklovskii's own career. His brilliance as a thinker and writer is evident throughout."—*Nature*

1978, 442 pages, 120 illustrations, hardbound \$19.00

Special Price \$16.15



Skylab photograph of X-ray emission from the sun, courtesy of American Science and Engineering, Inc., from *Discovering Astronomy*

New Horizons in Astronomy

Second Edition

John C. Brandt, NASA-Goddard Space Flight Center
and University of Maryland

Stephen P. Maran, NASA-Goddard Space Flight Center

"How can we progress in understanding so as to choose among the various theories for the origin of the universe, or possibly formulate a better theory? Surely the way must lie in observing and determining as many of the properties of the universe as we can, and in looking for a common pattern in the evidence."—from the Introduction

This successful volume on modern and historical astronomy has been thoroughly revised and updated. The authors, both active astronomers, have been able to draw on their own experience during the beginnings of space science and the exploration of the solar system, presenting a broad picture of astronomy from a humanistic point of view.

1979, 614 pages, 378 illustrations, hardbound \$16.50

Special Price \$14.03



The Ptolemaic universe, from *New Horizons in Astronomy*

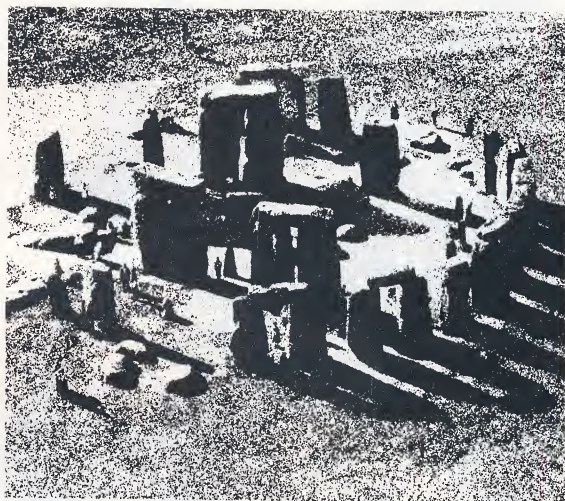
On Stonehenge

Fred Hoyle

What are the secrets that the stones hide? How was Stonehenge built? What was its purpose?

Fred Hoyle, Britain's foremost astronomer, has an answer. He theorizes that the first three structures at Stonehenge were used as astronomical calculators to observe and record eclipses. He presents convincing evidence on how paleolithic astronomers made and used these gigantic calculators. He also offers intriguing speculation on such topics as the origins of the concept of an invisible, all-powerful god and the "unlucky" number 13.

1977, 157 pages, 49 illustrations, softbound \$6.95



Aerofilms and Aero Pictorial, Ltd.

Highlights in Astronomy

Fred Hoyle

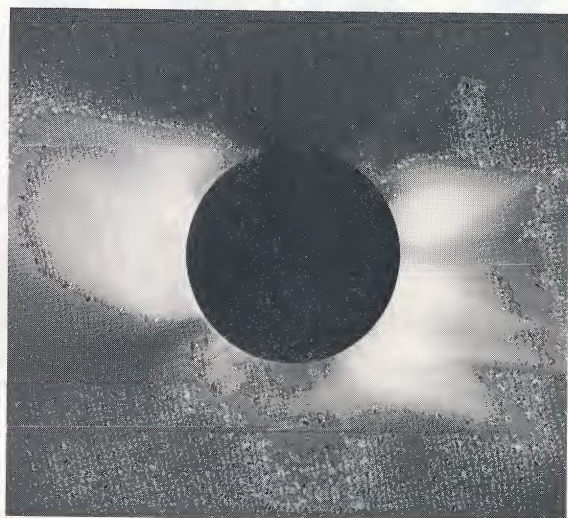
"Hoyle has always been prized in the astrophysical community. . . . Indeed, he is probably the foremost gunslinger at the old Cosmology Corral. Fortunately, this trait is much in evidence in this book. It is liberally laced with personal views and anecdotes: the universe, as it were, according to you-know-who. . . . The title promises *Highlights in Astronomy*; the text delivers admirably."

—*Sky and Telescope*

"Superb communication, laced with wit and clever ideas."

—*New Scientist*

1975, 179 pages, 149 illustrations (136 with color), 3 tables
softbound \$7.95



Courtesy of the High Altitude Observatory

Astronomy and Cosmology A Modern Course

Fred Hoyle

"A 'best buy' for amateur astronomers interested in more than the gathering of personal observations. . . . It deserves wide acclaim on account of its novel approach, completeness, clarity, and sheer mastery of the subject by one of its foremost and most fluent practitioners."

—*Journal of the British Astronomical Association*

"In my opinion it is the best book that he has (so far) written and I strongly recommend it to everyone who cares about the Universe and about our ability to understand it. . . .

"It differs from many other general books on astronomy by placing greater emphasis on links with physics. . . . The aim is always to provide understanding of physical processes and relationships underlying astronomical phenomena. This unusual feature adds to the book's attractiveness."

—Dennis Sciama, in *New Scientist*

1975, 711 pages, 617 illustrations (including 23 color plates), 45 tables,
hardbound \$19.95 **Special Price \$16.96**



Courtesy of the Science Research Council



Photo by Russell Abraham, from *Fair Game?*

The First Full Defense of Affirmative Action

Fair Game? Inequality and Affirmative Action

John C. Livingston, California State University, Sacramento
Challenging both advocates and opponents of affirmative action, John C. Livingston exposes the contradictions buried in the accepted ideal of equality of opportunity. Without the controversial policy of affirmative action, argues Livingston, there will never be genuinely equal opportunity, for the position of minorities in America is inherently and unconscionably unequal.

Fair Game? debunks the notion of "reverse racism"; chides liberals who, eager to avoid the taint of any kind of discrimination, have lost sight of the larger goal of justice; and examines the egalitarian stance of conservatives who have, ironically, taken up the old liberal banner of color blindness.

Infused with intensity, woven through with revealing anecdotes, and illuminated by flashes of wit, *Fair Game?* is certain to provoke discussion among readers on all sides of the affirmative action issue.

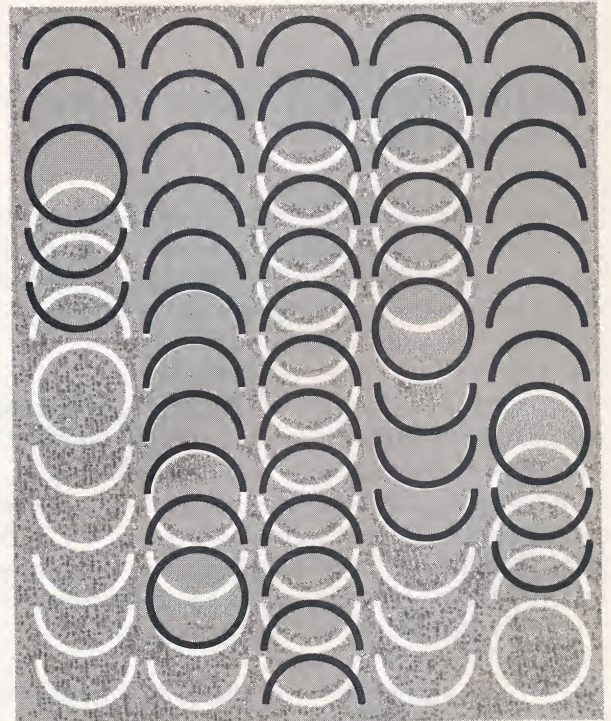
1979, 281 pages, hardbound \$12.95 Special Price \$11.00

Games as Models of Social Phenomena

Henry Hamburger, University of California, Irvine

Games as Models of Social Phenomena shows how game theory can help us make sense of a variety of situations and events in the real world. The book begins with fundamental concepts and definitions and progresses from the simplest level of children's games to the analysis of complex social phenomena. The variety of examples illustrating the usefulness of game theory include: the shell game, the death of Charles I of England, the arms race, "chicken," strikes, women's liberation, pollution, marriage, and free agents in baseball.

1979, 264 pages, 100 illustrations, hardbound \$16.95
Special Price \$14.41 (softbound \$7.95)





Humor

Its Origin and Development

Paul E. McGhee, Texas Tech University

Humor: Its Origin and Development brings together current research on the development of humor and offers some new ideas on its evolutionary origins. Focusing on the various influences on children's humor, Paul E. McGhee shows that a child learns to create and appreciate humor as he or she develops certain cognitive skills. McGhee also discusses humor as a useful clinical tool and as a therapeutic way for us to cope with our problems. Tracing its evolution in the human species as well as its growth in the individual, the book treats humor as a unique form of play with symbols, ideas, and images, perhaps not beyond the capacity of animals, such as the now-famous apes who communicate—and make “jokes”—with sign language. *Humor: Its Origin and Development* requires no specialized background or knowledge; anyone interested in humor will find it informative and intriguing.

1979, 251 pages, 22 illustrations, hardbound \$14.00

Special Price \$11.90 (softbound \$8.00)

Intelligence

Heredity and Environment

Philip E. Vernon, The University of Calgary

Intelligence: Heredity and Environment will interest any reader concerned with the nature of intelligence in general and the issue of intelligence testing in particular. It begins by exploring the current debate over intelligence testing and goes on to show how environmental and genetic points of view on the nature of intelligence complement, rather than contradict, each other. The book discusses the influence of the home environment on intelligence and reviews the evidence on genetic factors. Group differences are also considered, and the contention that IQ tests are unfair to ethnic minority groups is evaluated in light of experimental evidence.

1979, 390 pages, hardbound: \$16.00 Special Price \$13.60
(softbound \$9.00)

Computers and Intractability

A Guide to the Theory of NP-Completeness

Michael R. Garey and David S. Johnson
Bell Laboratories, Murray Hill, New Jersey

A readable, straightforward handbook by two authors with extensive experience in the field, *Computers and Intractability* shows how to recognize NP-complete problems and offers practical suggestions for dealing with them effectively. The book covers the basic theory of NP-completeness and provides an overview of alternative directions for further research.

"Whether NP-complete problems can be solved in polynomial time (i.e., whether a solution can be found as well as verified) is one of the most important unsolved problems in mathematical science. Garey and Johnson's long-awaited monograph introduces examples and theory of NP-complete problems and concludes with an extensive catalogue (100 pp.) of problems known to be NP-complete and a comprehensive bibliography cross-referenced to the text. An indispensable reference for anyone who cares about algorithms."

—*American Mathematical Monthly*

1979, 338 pages, 49 illustrations, hardbound \$18.50
Special Price \$15.72 (softbound \$10.00)

Microelectronics

A *Scientific American* Book

This collection of 11 articles on microelectronics was originally published in *Scientific American*, for which it earned the 1978 National Magazine Award for Specialized Journalism.

By distinguished computer scientists, electrical engineers, and microelectronics specialists, the articles explore such areas as the basic functional elements of microelectronics, microelectronic memories, and microprocessors, as well as the role of microelectronics in data processing, instrumentation and control, mass communication, animation, and art.

1977, 145 pages, 135 illustrations, softbound \$5.95



Machines Who Think

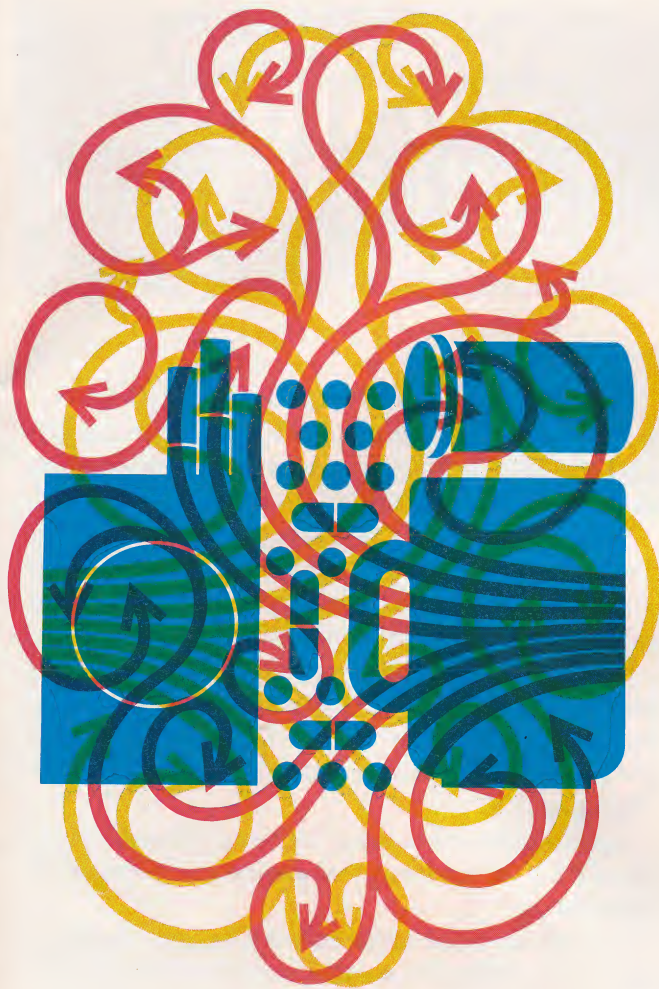
Pamela McCorduck

With a reporter's regard for facts and a novelist's feeling for drama, Pamela McCorduck traces the course of artificial intelligence, drawing on her interviews with major figures in the field.

Written for the general public, *Machines Who Think* describes ELIZA, the computer program that so successfully simulated the conversation of a psychological therapist that even computer professionals found themselves spilling their most private thoughts and feelings to a machine. The book explores the often neglected idea of "meat machines," which try to imitate the workings of the brain at a cellular level. McCorduck recounts the story of a chess-playing computer, whose first move in its first game was to resign.

Amusing and illuminating, thought-provoking and surprising, *Machines Who Think* describes the evolution of artificial intelligence from the dreams of the past to the reality of the present—and beyond.

1979, 392 pages, 19 illustrations, hardbound \$14.95
Special Price \$12.71



An Introduction to Linear Regression and Correlation

Allen L. Edwards, University of Washington

For the reader interested in statistics, Allen L. Edwards has provided a detailed, systematic treatment of linear regression and correlation. The book proceeds clearly and cumulatively, starting with the equation for a straight line, moving on to simple nonlinear relationships, and continuing to build on that foundation. The book explains all necessary concepts and uses no mathematics beyond high-school algebra. Each chapter offers a number of sample exercises to reinforce the principles discussed and provides answers to all questions requiring numerical calculations.

"It is straightforward, easy to follow, and seems to be able to explain a complex problem in normal and very understandable language—it's about time such a book came out."—R. B. Haynes, University of Mississippi

1976, 213 pages, 23 illustrations, softbound \$7.50

A Primer of Drug Action Second Edition

Robert M. Julien, Good Samaritan Hospital and Medical Center, Portland, Oregon

A Primer of Drug Action thoroughly treats the actions, uses, limitations, and side effects of drugs that affect the central nervous system. Detailed coverage is given to sedatives, tranquilizers, stimulants, opiates, alcohol, marijuana, and psychedelics. For anyone involved or interested in psychology, health, sociology, or pharmacology, this book is a convenient and reliable reference.

"A very accurate presentation of psychopharmacological information presented in a language and format for the nonprofessional."—Marvin R. Levy, Chairman of Health Education, Temple University

1978, 288 pages, 55 illustrations, hardbound \$15.00

Special Price \$12.75 (softbound \$7.50)

Multiple Regression and the Analysis of Variance and Covariance

Allen L. Edwards, University of Washington

This book shows the correspondence between the analysis of variance and multiple regression analysis of experimental data. Stressing clarity and accessibility, the author has kept the examples and notations intentionally simple, so that readers can gain an understanding of the methods of analysis rather than becoming involved in complex and time-consuming computations. Most of the calculations for the examples in the book can be made quickly and easily with just a hand calculator. Exercises at the end of each chapter provide additional insights into the material covered and test the reader's comprehension.

1979, 232 pages, 17 illustrations, hardbound \$13.50

Special Price \$11.47 (softbound \$8.50)

Bulk Rate
U. S. Postage
PAID
W. H. Freeman
and Company

W. H. Freeman and Company
660 Market Street, San Francisco, CA 94104



THEODOR H NELSON
BOX 3
SCHOOLEYS MTN
NJ 07870
SA99 *****

An Exclusive Benefit for **SCIENTIFIC AMERICAN** Subscribers

Dear Subscriber:

Whether science is your vocation, your avocation—or both—you'll find books in this catalog to quench your curiosity, bring you up to date on new developments, or plunge you into controversy.

You can brush up on astronomy, physics, math, or chemistry. You can find out how children learn to laugh, why caffeine may make you fall asleep, what snowflakes and meteorites have in common.

You'll find strong arguments for—and against—nuclear power. You'll discover a disquietingly blunt defense of affirmative action. You can learn what makes Sir Fred Hoyle's cosmology different from his colleagues'.

You'll also be able to enjoy the beauty of painstaking art, the fun of mathematical games, the pleasures of wine-tasting.

In addition to an unparalleled selection of titles—many never before available—we offer the following:

- 15% discount on all clothbound books
- All orders sent postage paid
- Full money-back guarantee on every book returned within 14 days
- BankAmericard/VISA or Mastercharge accepted
- Free gift service

This special catalog comes to you from W. H. Freeman and Company, the book-publishing affiliate of *Scientific American*. The selection, savings, and service you receive through this offering are available *only* to *Scientific American* subscribers.

So spend a few minutes discovering books and authors that share your enthusiasm for science. Then let us know which books you'd like to receive.

Sincerely,

Marsha Cromwell

Marsha Cromwell

P.S. Remember: we guarantee your satisfaction. You may return any book within 14 days and receive a full and prompt refund.

Order Form

Fill in the quantities you wish to order next to the title. Discounts have been subtracted. Enclose payment or credit card information with order. We pay postage and handling. Please allow 4 to 6 weeks for delivery.

	Quantity	Price	Total
aha! Insight	softbound 1017/K	6.50	
Algebra and Trigonometry Refresher	softbound 1110/K	5.95	
Ancient Native Americans	softbound 074/N	19.95	
Arithmetic and Calculators	hardbound 016/K	15.30	
	softbound 015/K	9.95	
Astronomy and Cosmology	hardbound 351/K	16.96	
Biochemistry	hardbound 174/D	22.95	
Botanical Prints	hardbound 192/A	21.25	
	softbound 1118/A	11.95	
Calculus: A Short Course	hardbound 466/K	13.60	
Calculus for the Life Sciences	hardbound 371/K	15.72	
Cancer: Science and Society	hardbound 098/B	11.05	
	softbound 097/B	7.50	
The Climate Mandate	hardbound 1054/B	9.30	
	softbound 1055/B	5.95	
A Clinical Companion to Biochemical Studies	hardbound 078/D	13.81	
	softbound 077/D	7.95	
A Combinatorial Introduction to Topology	hardbound 083/K	15.72	
Computers and Intractability	hardbound 1044/L	15.72	
	softbound 1045/L	10.00	
The Cycling Female	hardbound 1039/B	8.50	
	softbound 1038/B	5.00	
Discovering Astronomy	hardbound 034/J	18.28	
	softbound 033/J	13.00	
Earth	hardbound 289/G	15.72	
Ecoscience	hardbound 567/B	33.95	
	softbound 029/B	19.95	
Electromagnetism	softbound 064/H	12.50	
Energy From Heaven and Earth	hardbound 1063/H	12.75	
Enzymatic Reaction Mechanisms	hardbound 0070/D	25.08	
Evolution	hardbound 572/B	18.28	
Fair Game? Inequality and Affirmative Action	hardbound 1131/M	11.00	
Field Photography	hardbound 518/A	18.70	
Fractals	hardbound 473/K	15.72	
Galaxies and Quasars	hardbound 1133/J	11.90	
	softbound 1134/J	7.50	
Games as Models of Social Phenomena hardbound 1011/M		14.41	
	softbound 1010/M	7.95	
Genetics for Dog Breeders	hardbound 1069/B	12.75	
Genetic Recombination	hardbound 1037/B	19.13	
Geology Illustrated	hardbound 229/G	16.96	
Gravitation	softbound 344/H	32.50	
Gravitational Curvature	hardbound 1006/H	15.72	
	softbound 1062/H	8.95	
Handbook for Scientific Photography	hardbound 285/A	21.21	
Highlights in Astronomy	softbound 354/J	7.95	
The Horse	hardbound 491/A	21.25	
How to Solve Problems	softbound 845/A	7.50	
Human Nutrition	hardbound 183/B	12.96	
	softbound 182/B	7.95	
Humor: Its Origin and Development	hardbound 1095/F	11.90	
	softbound 1096/F	8.00	
Immunology, Aging, and Cancer	softbound 489/B	7.50	

	Quantity	Price	Total
Intelligence: Heredity and Environment	hardbound 738/F	13.60	
	softbound 737/F	9.00	
An Introduction to Linear Regression and Correlation	softbound 561/K	7.50	
Introduction to Matrices and Linear Transformations	hardbound 084/K	15.72	
Introductory Physics	hardbound 1008/H	15.30	
Machines Who Think	hardbound 1072/L	12.71	
Mathematics: A Human Endeavor	softbound 471/K	10.95	
Microelectronics	softbound 066/L	5.95	
Molecular Genetics	hardbound 048/B	20.40	
Multiple Regression and the Analysis of Variance and Covariance	hardbound 1080/K	11.47	
	softbound 1081/K	8.50	
Natural Regions of the United States and Canada	hardbound 255/G	16.57	
New Horizons in Astronomy	hardbound 1043/J	14.03	
On Stonehenge	softbound 363/J	6.95	
The Origin of Life	hardbound 294/B	8.50	
	softbound 293/B	5.50	
Paradoxes of Progress	hardbound 080/B	11.05	
	softbound 086/B	6.95	
Petroleum Geochemistry and Geology	hardbound 1005/G	25.50	
Physical Chemistry	hardbound 187/C	19.55	
Planets and Moons	hardbound 1041/J	11.90	
	softbound 1040/J	7.50	
A Primer of Drug Action	hardbound 053/F	12.75	
	softbound 052/F	7.50	
Self-Perception	hardbound 063/F	11.90	
	softbound 062/F	6.95	
Stars and Nebulas	hardbound 081/J	11.90	
	softbound 085/J	7.50	
Stars: Their Birth, Life, and Death	hardbound 024/J	16.15	
Statistics	hardbound 1022/K	12.75	
	softbound 1021/K	6.95	
Tissues and Organs	hardbound 091/B	25.50	
	softbound 090/B	12.00	
Wines	hardbound 553/A	9.35	
	Total		

☐ I enclose check or money order for full amount.

☐ Please charge my credit card

☐ Master Charge

☐ VISA/ BankAmericard

Expiration date

☐ Credit Card

Account Number

All credit card orders must be signed.

Signature

Canadian residents make exchange rate adjustment

California residents add appropriate sales tax

Total Cost of Order

AFFIX ADDRESS LABEL FROM BACK COVER HERE

Correct if Necessary

Name

Address

City/State ZIP

BOOKS OF SPECIAL INTEREST We occasionally prepare specialized announcements of books on topics you may find of particular interest. If you would like to receive this information, please check the appropriate boxes. ☐ Agriculture ☐ Anthropology/Archaeology ☐ Astronomy ☐ Biochemistry ☐ Biology ☐ Chemistry ☐ Computer Science ☐ Geology ☐ Mathematics ☐ Physics ☐ Psychology

—Detach this convenient order form and mail in this postpaid envelope—

Mathematics

A Human Endeavor

A Book for Those Who Think They Don't
Like the Subject

Harold R. Jacobs

Foreword by Martin Gardner

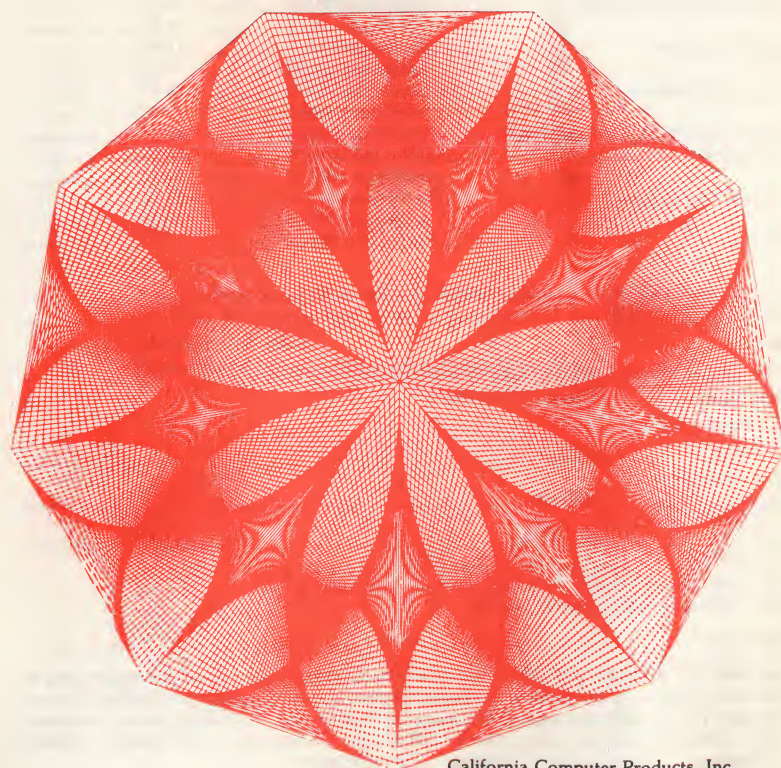
"Try this material on people who say there is nothing in mathematics and watch them change."—*Mathematics Teacher*

"What makes this not 'just another text' is the author's imagination and far-ranging knowledge. The book is filled with diagrams, pictures, cartoons, and comic strips. The text and problem sets are full of interesting applications."—E. R. Deal, Colorado State University

"Professor Jacobs' introductory text is a delightful attempt at making mathematics enjoyable and accessible. . . . The author is strongly motivated toward impressing the reader with the beauty and enjoyment of mathematics. He certainly has succeeded in his attempt."

—*The American Mathematical Monthly*

1976, 529 pages, 634 illustrations, softbound \$10.95



California Computer Products, Inc.

"A psychological self-help book that works."

Self-Perception

The Psychology of Personal Awareness

Chris L. Kleinke, Wellesley College

Chris Kleinke takes an experimental approach to the study of how we perceive ourselves, summarizing research and theory concerning self-perception of bodily states and behavior. The author looks at pain and hunger, guilt and love, fear and prejudice, self-relaxation and fear of success. *Self-Perception* explores both theory and application, so that the reader gains not only interesting insights but practical strategies for change.

"You can come away knowing more about yourself than you might have known from a yardful of other books. . . . All in all, Kleinke has given us a psychological self-help book that works."—*West Coast Review of Books*
1978, 265 pages, hardbound \$14.00 **Special Price \$11.90** (softbound \$6.95)



—Detach this convenient order form and mail in this postpaid envelope—

Gift Orders

Books make ideal gifts, and we make them easy to give. Just fill in the information below, and we'll send your gift books for you, along with a gift announcement. (Naturally the same guarantee and the same discount on hardbound books apply.)

Titles _____

Recipient's Name _____

Address _____

City/State _____ ZIP _____

Sign Card: _____

BUSINESS REPLY MAIL

First Class Permit No. 7953 San Francisco, California



No postage
necessary
if mailed
in the
United States

Postage will be paid by addressee



W. H. Freeman and Company

660 Market Street

San Francisco, CA 94104

